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Fine Paper Manufacturers to Merge In Canada

Consolidation To Be Known as Allied Paper Co., Will Include Lincoln Pulp & Paper Mills, Georgetown Coated Paper Mills, and Ritchie & Ramsey—James Maclaren & Co., Ltd., Plan Immense Development on Lievre River, Quebec, Including Storage Reservoir, Power Plant and News Print Mill

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 15, 1928.—A new company, to be known as the Allied Paper Company, is shortly to be launched here to effect the consolidation of the Lincoln Paper Mills, the Georgetown Coated Paper Mills, and Ritchie and Ramsay. The latter firm is a large merchandising concern, with old-established connections in the paper trade. The merging thus to be effected will bring a fourth large company into the fine paper field, the other three being the Provincial Paper, the Howard Smith Paper Mills and the Rolland Paper Company. It is not yet known whether the Howard Smith Company, recently purchased by the Wood-Gundy interests, will be brought into the organization. The question on this point has been raised by the fact that C. Howard Smith and Harold Crabtree, who formerly controlled the Howard Smith Company, is forming the new consolidation.

The Lincoln Pulp and Paper Mills took over in 1925 the Lincoln Mills, which was operating the business established in 1878. Its mills at Merritton, Ont., Maria, New Richmond, and New Carlisle, P. Q., comprise a sulphite pulp, a flour sack and two paper plants. Its products consist principally of writing, book, wrapping and rope paper and paper bags.

The Georgetown Coated Paper Mills is a smaller concern, its plant at Georgetown, Ont., manufacturing coated paper.

Production of the two units covers 20,000 pounds of coated paper, 50 tons of sulphite pulp, 30 tons of fine paper and 30,000 bags daily.

The Lincoln Paper Mills has a timber supply of 281 square miles licensed at Little Cascapedia, Que.

Maclaren Interests Plan Huge Project

The James Maclaren Company, Ltd., who now have a large pulp mill at Buckingham, Que., are planning an immense development on the Lievre River in Quebec, comprising a storage reservoir of 25,000,000 cubic feet capacity, a hydro-electric development of 120,000 h.p., and a news print plant with a capacity of 250 tons per day, all at an estimated cost of $12,500,000. A further development later on, entailing another 125,000 h.p. of hydro-electric energy is planned, indeed a total development of 270,000 h.p. in all is planned.

The announcement of these plans is made officially by R. H. Kenney, the general manager of the company. The initial development of 120,000 h.p. will be at High Falls, on the Lievre River, 23 miles north of Buckingham, Que., and the storage reservoir will be at Cedar Rapids, twenty miles north of High Falls. The pulp and paper plant will be located either at Buckingham or at Masson. The contract for the erection of the power plant at High Falls has been given to the Montreal firm of W. I. Bishop, a few days ago, who is now sending in supplies, and erecting construction camps at the site of the power development. The plant will be similar in construction to that of the International Paper Company's subsidiary, the Gatineau Power Company, at Chelsea. The power house will be equipped with an initial installation of three 30,000 h.p. units, and a fourth will be put in at a later date. The water in the Lievre River will be backed up for a distance of twenty miles, but will not affect the surrounding country to any great extent as for most of the distance the river runs through high banks, and the lower land is swamp land, which will be transformed into small lakes studded with islands.

As soon as the High Fall power development is properly under way, the Bishop Company will commence upon the construction of a dam on the river at Cedar Rapids, for the creation of the storage reservoir. The dam at Cedar Rapids will be fifty feet high, and will back the water of the Lievre as far as White Fish Lake.

The construction of the power house will cost approximately $5,000,000; the storage dam at Cedar Rapids, $1,500,000, and the two developments will furnish employment for about 1,000 to 1,500 men. It is expected they will be completed in the spring of 1930.

The Cedar Falls storage will drain an area of 4,000 square miles, and will raise the level of the river north of the dam, to the extent of about 35 feet. Early next summer the Maclaren company expects to go ahead with the construction of a pulp and paper mill, to be located at either Buckingham, adjacent to its lumber mills, or at Masson. If at the latter village, the two plants will be connected by a three-mile pipe line for pulp transmission from the ground wood mill at Buckingham which is to be considerably enlarged.

The paper mill will be equipped with two 234-inch machines with a capacity each of 125 tons of news print daily; will be equipped with a pulp mill; will furnish employment for about 500 men and its construction will cost in the neighborhood of $6,000,000.

Mr. Kenney stated that the power from the High Falls plant will be used to operate the paper mill and for the generation of steam. The paper mill is expected to be ready for operation late in 1930, and the contract for its construction will be awarded later on.

The Maclaren company also intends later on to utilize its power potentialities on the Lievre River between Buckingham and Masson. At present at the Dufferin Falls, adjacent to the lumber mills,

(*Continued on page 30*)

Philadelphia Market Shows Upward Trend

Livelier Demand Experienced For Both Fine and Coarse Papers—Book Papers and Coated and Uncoated Cover Papers More Active Than For some Time Past—Local Distributors Generally Optimistic Over Future Outlook—Waste Paper Supplies Scarce

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 15, 1928.—Continued upward demand has given a livelier trend to the local paper industry. Both fine and wrapping paper divisions report a decided improvement over the preceding month and dealers in all branches of the trade are more optimistic in their attitude for the remainder of the year. There is a steady trend to prices quoted, with prospects of this standardized valuation of paper continuing for the remainder of the season and possibly until after the New Year. Mills are reported fairly well supplied with orders to assure this steady trend for the balance of 1928. With no disturbance looming from this phase of trade dealers are now encouraged to place larger orders with the manufacturers with the assurance that their profits will be maintained and losses sustained by the recent cutting lessened in the balance of favorable conditions for the last quarter of the year.

As demand for all grades of wrapping paper extends there is evidence that the current month will show improvement over the corresponding period of 1927. Assured that the election will be no factor for disturbance to industry there is greater confidence on the part of the consumer in the future of business. The bag situation is firmer, with a goodly portion of orders now being placed for all grades. Butcher fibers have been advanced from ¼ cent per pound to $5 per ton on the 40-pound weight grades. Parchments are steady with a normal demand. As improvement in the printing industry promotes the sales of paper, there has been greater activity in book stocks and cover papers, both coated and uncoated. Wholesale demands are likewise holding, local mill representatives reporting greater shipments in car load lots than at the same season of the preceding year. Bristol boards are steady and in good demand and greeting card manufacturers are engaged in production of Christmas and New Year supplies on a broadening scale.

Mills Are Becoming More Active

With the mills more active, paper stock is diminishing. Collections are sparse and negligible. There is active demand for book grades and old news with prices likely to go higher as the shortage grows more acute with the revival of manufacturing in book paper mills. Demand for soft white shavings is much improved while ledger papers are consumed as soon as stocks can be secured. It is difficult for the wholesalers of paper stock to secure sufficient ledgers to make up a car load shipment, despite the urgent needs of the trade and the prices that are offered. There are no accumulations of any of the grades and the whole list is expected to advance if mill buying increases to any proportions.

Matthias & Freeman Co. Moves

The Matthias and Freeman Company, now located at 117 North 7th street, will remove this week to new quarters recently leased at 143 North 5th street. The warehouses and executive offices will be combined in the first floor of the Horstmann Building, where double the present space has been acquired for the distributors of box manufacturers' papers and fine grades for the printing industry.

W. C. Chadwick Heads Raymond McNutt Production

Walter C. Chadwick, secretary of the Raymond and McNutt Company, is now manager of the production department at its headquarters in the Sheridan Building. He will confine his attention to the manufacturing and converting of social stationery, papeteries and the other branches of the converting of paper supplies distributed through the firm. President J. Leonard Raymond is on a belated vacation tour of Canada and New York State.

Wholesale Waste Merchants To Convene

The Wholesale Waste Merchants Association of Philadelphia is preparing to open the winter activities and a meeting shortly will be announced by the secretary of the association, William J. McGarity, Sr., of the Penn Paper and Stock Company. The organization will hold its first Fall session in late October at a date to be set by the secretary in the coming week. The outing which was to be held this season has been postponed owing to the illness of the secretary, who during the summer suffered a nervous breakdown. With his return to health the activities of the wholesale dealers association will be resumed.

Frank M. Sayford Co. Makes New Plates

An entirely new decorative assortment of paper plates are now being shown to the trade by the Philadelphia offices of the Frank M. Sayford Company, Inc., in the Public Ledger Building, with headquarters in Brooklyn, N. Y. The new plates are of high grade paper foundation with an attractive colored border design. They have been distributed here by the local manager, Philip J. McCoy.

Furniture Trade Buys Paper Products

There has been a growing demand for woven twisted paper products by manufacturers of reed furniture, baby carriage manufacturers, and allied lines, within recent months in the local industry. The National Fibre Products, Inc., which has at its head Earl W. Twitchell, with offices in the Drexel Building, has been featuring these products.

J. H. Wantling Representing Continental Mills

As Lewis T. Condon, manager of the Philadelphia offices of the Continental Paper and Bag Corporation, is temporarily relieved from his duties as head of the Quaker City offices in the Land Title and Trust Building, while on a recuperating trip to the mountains, his duties are assumed by J. H. Wantling, of the New York headquarters. Mr. Condon was recently confined to the University of Pennsylvania Hospital for observation of a stomach disorder. He has been associated with the Philadelphia management for a long term of years.

Reading Paper Mills Mail Campaigning

A direct mail campaign on the line of papers manufactured by the Reading Paper Mills, of Reading, Pa., has been productive of broader demand. The Reading mills have been conducting an intensive drive on the Louvain, Laurentian, Waverly Vellum, Kinkora and Bodleian book papers under the advertising manager. Henry Atwater, formerly associated with the A. M. Collins Manufacturing Company. Attractive sample books and demonstration sheets are being sent to the consumers in cooperation with the local dealers and those in other sections of the country. The Reading mills are represented here by the Paper House of Pennsylvania and the Lindsay Paper Company.

Shryock Brothers Improve Mills

Shryock Brothers, with Philadelphia headquarters at 924 Cherry street, have been enjoying an extended production in the paper board mills located at Downingtown, Pa., which are operated under their control. During the summer months, the mills were sub-

jected to a thorough overhauling and many innovations made in the way of modernizing the units. With the remodeling of the machinery the firm has been able to increase production and make speedier shipments on its binders boards, now in fair demand among the suit case and trunk manufacturers and novelty manufacturing trades and bookbinders. The Shryock mills are directly descended from the first board manufacturers of Pennsylvania, dating back to the Colonial days.

Charles W. Williams Co. New Holly Papers

There has been a lively demand for the newest of holly papers produced by the Charles W. Williams Company of New York and distributed here through the local branch in the Bourse Building under Manager George W. Hallahan. There are five designs in the high grade De Luxe line for holiday need in the box manufacturing industry, with the poinsettia design predominating.

Hog Island May Be Bought By Paper Board Concern

As one of the larger west coast manufacturers of paper board products is negotiating for the purchase of an additional mill to be established here in conjunction with a recently acquired container manufacturing plant, it has been rumored that the concern is planning to take over a portion of Hog Island for its new production quarters. While no official information has been given out on the proposed use of the Hog Island project for a paper mill, it was learned that officials of that ship yard connected with the Government had been approached for the purchase of part of the land but that nothing had been definitely decided upon. The board mill which is proposed to be erected on the site adjacent to the water, where excellent port facilities are available, is to be one of the largest in the East if the deal is consummated and will be identified with interests that have many paper manufacturing affiliations of nation wide importance. Hog Island was used by the Government during the war as a ship building and repair plant. A large dry dock is erected on the site of vast acreage which still is under government ownership.

George W. Wheelwright's New Lines

There is now ready for distribution to the trade the newest developments of the George W. Wheelwright Paper Company, of Leominster, Mass., represented here by Otto W. Renner, with offices in the Insurance Company of North America Building. The new lines to be brought out by the company with samples ready for the trade this week, are cover papers to match the Best Plate Finish, the firm's specialty for the past 40 years. These papers, which were produced in colors about six months ago for the first time after years of production in white and India, are to be matched with the new Corinthian Cover of smooth antique finish, which will be produced in the six colors of the Best Plate Finish book papers as well as white and India, so that a complete booklet can be made in the combination of cover to match inside leaflets. These new lines will be stocked in entirety by the Satterthwaite, Cobaugh Company and the Whiting, Patterson Company. The new lines will also be stocked in Baltimore and all other distribution houses of the country handling the Wheelwright papers.

Paper Men Appear for Forestry Appropriation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 17, 1928.—R. S. Kellogg, chairman of the National Forestry Program Committee, with other members of the committee as well as representatives of the paper and lumber industry and foresters appeared before General Lord, Director of the Budget, last week in connection with the needed appropriations for the fiscal year 1930 for federal forestry work.

Major Oliver M. Porter, secretary of the American Paper and Pulp Association, and George W. Sisson, Jr., of the Racquette River Paper Company, in addition to Mr. Kellogg, represented the paper industry. Ex-Senator Irvin L. Lenroot, of Wisconsin, was also present.

The main argument and the presentation was in charge of Mr. Kellogg. He asked for a total of $6,269,378 for the fiscal year 1930 and he told General Lord that this is the minimum needed under the authorization of Congress.

Of this amount, said Mr. Kellogg, $1,765,000 is needed under the Clarke-McNary law of 1924; $3,000,000 is needed under the McNary-Woodruff law of 1928, and $1,504,378 is needed under the McSweeney-McNary law of 1928.

The Congressional authorization for the McNary-Woodruff law of 1928 was $3,000,000, of which $2,000,000 was appropriated by Congress for the fiscal year 1929 and $3,000,000 is being asked for next year.

Under the Clarke-McNary law of 1924 Congress authorized $2,700,000, of which $1,335,000 was appropriated by Congress for 1929 and $1,765,000 is being asked for 1930.

Also under the McSweeney-McNary law of 1928 Congress authorized $3,575,000, while Congress appropriated $1,215,725 for 1929 and Mr. Kellogg asked for $1,504,378 for 1930.

The committee was given a sympathetic hearing by General Lord and it is now all a proposition of how much can actually be allotted to this work by the government.

"The American paper industry is vitally interested in the adequate financing of research investigations in forestry, as authorized by the McSweeney-McNary bill passed during the last session of Congress," said Mr. Porter in favor of the appropriations.

GLAZED AND FANCY PAPER MANUFACTURERS ASSOCIATION
TONNAGE REPORT FOR MONTH OF AUGUST, 1928

Figures are in thousand sheets 25x40, and total pounds. On Hand is at end of month.

Reports made by	9 Mills			11 Mills			8 Mills		
Class of Paper	Made			Shipped			On Hand		
	Mills	Sheets	Pounds	Mills	Sheets	Pounds	Mills	Sheets	Pounds
Coated PLATE									
White	4	933	69,563	6	1,408	193,123	3	641	37,078
Colors	6	2,718	221,220	9	4,350	415,173	6	3,387	283,827
Coated FRICTION									
White plain	5	5,581	394,558	5	4,838	344,952	5	1,926	175,594
Colors plain	7	3,691	278,975	8	4,785	391,841	7	8,113	759,118
Coated FLINT									
White plain	4	220	23,042	5	433	54,371	4	638	70,279
Colors plain	3	448	46,762	4	544	62,693	3	2,480	301,591
Coated EMBOSSED, etc.									
White embossed	4	783	79,928	6	1,011	103,310	3	185	19,340
Colors embossed	8	4,215	413,983	10	4,856	516,459	7	8,361	1,060,029
Printed fancy	3	719	84,474	5	1,132	134,355	2	2,423	317,879
UNCOATED Papers,									
Printed or decorated	3	936	82,957	4	880	80,715	2	259	129,607
CLOTH LINED or reinforced	3	389	152,076	5	348	132,472	2	386	147,042
TOTALS: of above	9	20,633	1,847,538	11	24,583	2,429,464	8	28,799	3,301,384
August, 1927, same mills	9	17,795	1,567,349	11	22,185	2,364,365	8	20,563	2,374,791
Increase or Decrease(—)		2,838	280,189		2,400	65,099		8,236	926,593

Reported average number of days orders ahead—6 mills, 6.25.
Reported average number of working days in month—8 mills, 25 days.

LEONARD I. HOUGHTON, Secretary, 146 Chestnut St., Springfield, Mass.

Ontario Paper Manufacturers Continue Active

Plants Making Book Papers Are Generally Booked Well Ahead—Bond and Ledger Mills Also Busy—Coated Paper Mills, However, Are Not Working at Capacity at Present—Board Mills Considerably Behind in Orders—Paper Box Trade Prosperous

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 15, 1928.—The wholesale paper trade in Ontario is getting back into its stride again after a rather quiet September. In that month sales in most lines fell off materially, although for the most part prices were well maintained and there was comparatively little competitive selling, despite the fact that for several weeks orders were rather hard to get. October, however, has opened up well and there is every indication that the last quarter of the year is going to be a good one from the standpoint of sales and general turnover.

There is a satisfactory degree of activity in centers like Toronto and Hamilton among the larger printing and publishing plants by whom the call for paper is on a satisfactory scale, although it must be said that many of the smaller plants are less busy than they were last month. This, however, has had very little effect on the consumption of paper. Few of the consuming plants are stocking up on any paper lines, the practice being in nearly all branches of the trade to buy for immediate requirements only. From now on to the end of the year it is anticipated that these requirements will be sufficient to guarantee good business to both the paper manufacturers and the wholesalers.

There is an excellent call for book and cover stock from catalogue and direct mail sources and with business generally throughout the province in a much more stabilized condition than it has been for some time, bonds, writings and coated stock are beginning to feel the favorable effect. The paper converting trade, also, is speeding up under the impetus of a better demand for such lines as envelopes, blank books, business forms and general stationery supplies and there is little doubt that the balance of the year will yield excellent business for the converters of paper lines.

While last month saw a falling off in sales by the jobbers there was no diminution in activity of the paper manufacturing trade. Plants manufacturing book papers have been busy all summer and have business ahead guaranteeing close to a hundred per cent capacity until well towards the close of the year. Bond and ledger mills are also busy but to a slightly lesser degree than the book mills. On the other hand coated mills could handle considerably more business than they are getting just now, although the tonnage disposed of during the summer months was of satisfactory volume. Glassine, grease proof and waxing paper manufacturing plants are enjoying a good demand for their products and there is an increasing demand for onion skin. In the light weight paper class the mills are decidedly busy and firms making tissues, toilets and specialty lines are operating close to capacity. Some of the light weight paper manufacturing concerns are employing direct advertising methods to increase sales and are getting results through demonstrations, window displays and magazine and other advertising.

The coarse paper market has been somewhat draggy of late but there are signs of improvement in the general tone, with wrapping and paper bags undergoing slightly better sale than they have for some weeks past. As far as kraft paper is concerned, however, the demand appears to be steadily increasing and Canadian mills have been enjoying some good business both on domestic and export account. A good volume of trade in kraft is also coming from the Canadian West.

Despite the coming on to the market of additional tonnages of board through the construction of two new board mills in Toronto, the plants are all busy and there is no suggestion as yet of an overstocked market. Several of the plants are considerably behind in their orders and distributors report difficulty in getting anything like prompt delivery. The paper box trade is extremely busy on Christmas stuff and is making large requisitions on the board mill for stock. The paper box trade has been in a prosperous condition all summer and the year will undoubtedly close with a fine record of business in folding, set-up, corrugated and fancy boxes. with most firms the demand for seasonal cartons for the Christmas trade has already surpassed the record of the same period last year. This is noticeable also in the papeterie trade where the business already placed for the coming Christmas trade is larger than last year and promises to break the record.

There is still an excellent demand for rag and paper stocks and dealers are predicting stiffer prices. These will likely apply to stock used in board mills and not to the product utilized by the book mills. In New York the price of news stock is already up around $16.00 which would probably equal here about $4 in excess of that figure. Collections are satisfactory and appear to have reached their peak at the present prices.

The pulp market shows a slightly firmer tendency and it is not so easy now for the paper manufacturers to get bargains in either bleached or the unbleached product. Neither the paper nor the pulp manufacturers are carrying stocks of any size and consumers are buying only as they require the stock. The pulpwood market is dull, with the American mills holding aloof under the belief that prices will go lower. It is argued that as the quotations on news print have fallen, there should be a reduction in the price of pulpwood, a view which does not appeal to dealers who cannot see why they should take a low price for their wood because of the decline in the finished article, due to reasons which have no relation to the cost of taking out the wood. The Canadian pulp and paper companies have taken out a very large cut this year, while the farmers have restricted their operations owing to unattractive prices. One large Canadian company has been offering jobbers extremely low prices to take out the wood next season.

Quiet Outlook in the Pulpwood Line

This will be a rather quiet winter in the pulpwood line in the Thunder Bay District of Ontario. With the Thunder Bay and Fort William Company's news print plants shut down for an indefinite period, it is not likely that there will be much doing in the woods arena. The Thunder Bay Paper Company will be operating four medium sized camps but will not be buying from jobbers. The Fort William Pulp and Paper Company will not put in any camps this season, their pulpwood stock being sufficient for their needs when the mill starts running again. Provincial Paper, Ltd., will be operating their usual quota of camps during the coming season. Preparations are being made to open now. The Great Lakes Paper Company will be working a huge stock of pulpwood which is on hand and will not be operating any limits, but it is said that the organization is buying wood for several jobbers.

Ottawa Powerless in Paper Strike

The possibility of action being taken by the Ontario Minister of Mines and Forests in the Kapuskasing strike situation is interesting labor men in Ontario. The investigator sent to Kapuskasing by the Labor Department has made his report and it is said to deal with men's rights to organize as the principal issue at stake. The Ministry of Labor at Ottawa is powerless to take any action, having no control over the paper industry or over the natural resources the Spruce Falls Company are developing. In all pulpwood berth or water power contracts made by the Dominion Gov-

ernment in the western provinces, where the federal authorities control the resources, clauses have been inserted protecting the rights of the workmen. Ontario, it is stated, has made no such provision in its contracts. Ottawa is now waiting to see what action the Ontario Government will take at Kapuskasing and in the meantime only a comparatively few of the paper makers are on strike and the company says that the difficulties will soon be straightened away.

Notes and Jottings of the Trade

The announcement was made a few days ago that Charles V. Syrett, president of the C. V. Syrett Paper Company, Ltd., Toronto, had purchased a site 75 by 100 feet on Bay street on which he will build in the Spring a $500,000 automotive building. The structure will be from eight to ten stories high.

R. B. Foulis, superintendent of the coating division of the Georgetown mill of Provincial Paper, Ltd., has returned, with his wife, from several months spent in Scotland and the British Isles. Mr. Foulis said he was greatly impressed with the change for the better in the paper plants in the Old Country, which, he stated, were being equipped with the latest machinery and appliances, in contrast to his last visit seven years ago.

C. Ernest French, of the Toronto office of the Howard Smith Paper Mills, Ltd., is an enthusiastic airman. Accompanied by Mrs. French he recently flew from Toronto to Montreal in a Fairchild Monoplane, as guests of the pilot, R. K. Rose, of the Ottawa Air Base, who laid out the air mail route recently inaugurated between Montreal and Toronto. Mrs. French is the first woman to fly between the two cities and return. While in Montreal the party were the guests of Mr. and Mrs. C. Howard Smith at the Chateau Apartments. Howard Smith is also devoting some of his spare time to flying.

Purchase by a big insurance company of a couple of blocks on the west side of University avenue, Toronto, will mean that eventually two paper firms will have to move. Provincial Paper, Ltd., have had their head office in one of the purchased blocks and the Interlake Tissue Mills office has been in the same premises. It is understood that Provincial have purchased a site farther up the street and will build there in the Spring, the location being close to that of the contemplated head office building of the Abitibi Power and Paper Company.

Charles F. Mansell, the veteran paper salesman of the Toronto office of the Howard Smith Paper Mills, Ltd., was honored in Toronto a few days ago, when he was presented with a beautiful gold watch by Cyrene Preceptory Knights Templar, the gift marking his twenty-two years' incumbency of the office of treasurer of the Sovereign Great Priory of Canada. The gift was the outcome of the appointment of a committee at the recent annual meeting of the Canadian jurisdiction at which Mr. Mansell retired from the position to the accompaniment of many appreciative words.

A further development of the merger under C. Howard Smith of the Lincoln Pulp and Paper Company, the Georgetown Coated Paper Company and Ritchie & Ramsay, took place a few days ago when it was announced in Toronto that the sales offices of the three companies would be consolidated. After this week the sales offices of the merged organizations will be at 304 Atlas Building, corner of Bay and Temperance streets, Toronto.

R. B. Hall, who is in charge of the Howard Smith Paper Mills office in Toronto, has returned from a business trip to Ottawa and Montreal.

George Carruthers, head of the Interlake Tissue Mills, Ltd., head office Toronto, has returned after attending a meeting of the executive committee of the Canadian Pulp and Paper Association at Montreal.

A Toronto firm of architects are now engaged in preparing plans for the Abitibi Power and Paper Company in connection with the proposed building of a new head office for the company in Toronto, the headquarters of the organization now being in Montreal. The site has been relocated on University avenue and it is proposed to erect a four-story structure, steel frame and brick construction, 80x100 feet. The property fronts some 120 feet on University avenue and has a depth to Simcoe street of 128 feet approximately. It is expected that the building will be ready for occupancy in the Spring or Summer of next year.

The Ontario Government has awarded timber-cutting rights in Henry Township, Sudbury District, to H. A. Batsford, of Warren, Ont. Prices offered by the successful tenderer are considerably in excess of the upset. The quantity of jack pine is estimated at 200,000 feet, and this brought $8.75. Spruce and balsam sold for $3.25 and $2.15 respectively, the quantity being about 900 cords. There are four or five thousand cords of poplar and jack pine pulpwood, which will bring $2.15. The jack pine will largely be cut by portable mill and used for the settlements in the area.

Paper box cuttings in bales are liable to spontaneous combustion, and if mixed with other factory refuse, such as oily rags, constitute a dangerous fire hazard. This is the finding of the Ontario Government analyst, Professor L. J. Rogers, to whom E. P. Heaton, Ontario Fire Marshal, submitted samples as the result of three outbreaks of fire in the same paper box factory at Guelph, Ont. These fires occurred on a Sunday or holiday in each case, and were unexplained except by a theory of spontaneous combustion, but box cuttings had not hitherto been regarded as particularly susceptible. The firm concerned is taking additional precautions in the handling of waste, and bales will be stored in future in an isolated building.

Frank Sims, who for several years has been assistant superintendent of the paper mill of Provincial Paper, Ltd., at Port Arthur, Ont., has been made superintendent, succeeding L. F. Knickerbocker, who resigned recently after six years service to become associated with the International Paper Company, New York. Mr. Sims has had a long experience in paper making and is regarded as an efficient and highly skilled exponent of the paper making art.

L. F. Knickerbocker, prior to his departure from Port Arthur for New York, where he has joined the International Paper Company's forces, was entertained at luncheon by the Port Arthur Chamber of Commerce, when the guest of the evening was presented with a valuable tie pin. Mr. Knickerbocker was formerly superintendent of the Port Arthur Division of Provincial Paper, Ltd.

Gillette Fibre Mills Reorganized

[FROM OUR REGULAR CORRESPONDENT]

MECHANICVILLE, N. Y., October 15, 1928.—The Gillette Fibre Mills, Inc., which has been operating in this city for some time manufacturing fiber board, has been reorganized and is now said to be ready to go ahead with plans for expansion. Harold R. Gillette is president of the firm. Randall J. La Bouell, Jr., of Albany, has been made vice president and general counsel. The company recently took over the entire plant of the Wood Flong Company, consisting of three buildings, and plans to increase the manufacturing of electrical insulating fiber board and papers. One of the largest customers of the firm's product is said to be the General Electric Company. Harold R. Gillette, head of the company, developed the processes used in the manufacture of the fiber board after years of research. At the present time the company is employing thirty workers but this number will be greatly increased with completion of the expansion plans.

J. E. Carter Loses Arm at Vancouver

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 28, 1928.—J. E. Carter lost his right arm September 21 when it was caught near the shoulder in the barker at the plant of the Columbia River Paper Company at Vancouver, Wash. His sleeve caught on a knot on a log, drawing his arm into the machine. His condition is reported as fairly good considering the seriousness of the accident. He is an old resident of the city.

Paper Demand Expanding Steadily in Chicago

Fine Papers, Wrapping Papers, Book Papers and Tissues, Are All Moving in Excellent Volume —News Print Market Shows Considerable Improvement — Southern Kraft Maintains Strong Position—Box Board Continues in Particularly Good Request

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 15.—The week has been unusually hot as far as weather goes but paper conditions continue to improve. Immediately following the Fall Meeting of the National Paper Trade Association there was a noticeable settling down to hard business. While prices have remained the same as last week in practically all lines an increase in demand has been noted. Especially is this true in book papers, fine papers, tissues and wrapping papers.

News print is in better shape than last week with a bit lessened production being taken up by a demand caused by the election, fall business season, etc. The board market is good with box board especially holding the spotlight. Southern kraft is reported as improving with a good demand and stable market. From now until after the holidays every line looks for good business and present indications are that the season will even more than live up to expectations.

Chicago Paper Association's Plans

The Chicago Paper Association is progressing rapidly with the cooperation of the Stevenson, Harrison and Jordan Company, recently appointed by the association to act as secretary and business advisor to its members. In speaking of the program, Leo S. Altholz, president of the association, said, "Nothing could please me more than the thought of the good fortune that is ours, because the Stevenson, Harrison and Jordan Company have consented to accept the retainer of our association. Meeting Mr. Harrison is alone enough to inspire any business man to want his company to do the new and better things, so necessary for success in these days of intense competition. Our directors join me in the thought that the sun of better things has risen for our members and that the paper merchandising business in our market will be bigger, better and a happier business to be in than ever before."

Pilcher-Hamilton-Daily Merger

It is announced that effective October 1, 1928, the companies known as the Pilcher-Hamilton Company and Daily Brothers have been merged, forming a corporation known as the Pilcher-Hamilton-Daily Company, with their general offices and warehouse at 349 West Ontario street, Chicago. The officers and directors will be those of the Pilcher-Hamilton Company with the addition of John T. Daily, who has been elected a vice president and director. Mr. Daily also assumes the management of the cordage department.

News of the Paper Trade

The October issue of the "Bookanwrap," a monthly publication published by the Pilcher-Hamilton-Daily Company, contains the complete account of the merging of the Pilcher-Hamilton Company and Daily Brothers. Announcement is also made of the continued success of Rain-Pak, a soak-proof raincoat, put up in a handy package and selling for a quarter—another versatile accomplishment in the paper field.

The Strathmore Paper Company recently issued an attractive bit of direct mail advertising printed on Strathmore Parchment, white, advertising that paper for letter and envelope use. Along the entire length of the folder, about fourteen inches only, a brief message about the need of impressive letters provides the copy. Otherwise, the blank sheet gives the prospective customer plenty of opportunity to examine the paper itself.

The Chicago distributors of the Eastern Manufacturing Company, the LaSalle Paper Company, are receiving the benefit of a folder sent out by the New York organization describing a complete line of holiday suggestions printed on Atlantic Bond. Twelve actual letterheads in various colors and combinations are included in the folder together with a price list and descriptive matter on each of the samples enclosed. They are suggestions for Holiday Greeting Letters which any printer can produce inexpensively by using the same paper with duplicates of the same printing plates.

The West Virginia Pulp and Paper Company, 732 Sherman street, Chicago, has recently issued its October 1 mill price list of Westvaco brands. It is their quarterly price quotation containing fourteen pages of prices on various grades together with conditions of sale. A sheet giving stock sizes and weights in standard mill grades sold in original packing only has also been sent out to the trade together with eighteen 3½ x 8 inch sample sheets of paper.

In reporting the outing of the Chicago Paper Association as guests of D. F. Peck at the Medinah Country Club no mention was made of the fact that the association, in token of its appreciation of Mr. Peck's hospitality, presented him with a Majestic Radio, for which he is one of the most pleased paper men in the Chicago district. While Mortie Inlander's winning of the silver cup for low net honors was announced it has also been announced that a foresome composed of Peter O'Leary and Lewis O'Leary, of Ruth Brothers, Milton G. Kelly, of Fred Rentz Paper Company, and B. J. Neff, won honors for low net and low gross as far as foresome competition went.

The most recent issue of "Rags," published by the Rag Content Paper Manufacturers, contains a splendid essay on the subject of beauty invading business which covers the subject of art creeping in to actually sell merchandise for hard headed business firms. The article brings out the fact that a new field has been opened for good printeres in this commercialization of beauty with the old and somewhat monotonous average in the graphic arts giving way to new designs and color effects. A few specimens are added to give the article an educational touch. The story is well worth reading by any paperman or printer.

The Hampden Glazed Paper and Card Company, of Holyoke, Mass., through its Chicago distributors The Paper Mills Company and the James White Paper Company, is announcing to the trade in this section Capri Coated Tint Paper, a new coated paper Italian blue green and ivory with a color atmosphere decidely unusual and distinctive. The Capri Coated Tint has a variegated texture creating a new coated background for the printers use and is being worked out splendidly in producing beautiful works of advertising.

Bermingham & Prosser, Chicago paper merchants, have recently issued the third of a series advertising Peacock Folding Enamel sold by that company. It illustrates just how a unit campaign can be obtained from a 32 x 44 sheet eliminating waste and producing a complete job in every detail. The series has been very useful to advertisers who do not have the thorough knowledge of the experienced printer.

J. H. Stickley Goes With Miami Tablet Co.

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 15, 1928.—J. H. Stickley, treasurer of the Gummed Products Company of Troy, 20 miles east of Dayton, during the last seven years, has accepted an office position with the Miami Tablet Company in West Carrollton, and has begun his new duties.

As soon as he can find a suitable location in West Carrollton Stickley residence has been leased to Forrest Covault.

New Paper Box Plant to Be Erected at Menasha

Stockholders of Wisconsin Carton Co. Vote to Complete Factory Speedily in Order That Operations May Be Started—Corrugated Containers and Other Products To Be Manufactured —Board of Directors Elected, Including J. T. Mader and Others

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 15, 1928.—Immediate erection of a factory building is contemplated by the Wisconsin Carton Company, organized recently at Neenah, Wis. The company has purchased the site at West Menasha, Wis., where at one time a mill was to be erected by the Valley Paper Mills.

Stockholders meeting at Neenah a week ago voted to proceed with organization of the company and rush a factory to completion so operations can be started. Corrugated containers and other paper box products will be manufactured.

The company's authorized capital stock is $200,000, of which more than half already has been subscribed. A board of directors was elected consisting of the following: J. T. Mader, formerly with the Menasha Printing and Carton Company; B. C. Koepke, contractor, of Appleton, Wis.; J. T. Thompson, of the Davis-Thompson Machine Company, Milwaukee; Gust Ladwig, building contractor of Milwaukee; W. M. Otto, superintendent of the Henry Box Plant at Watertown, Wis.; W. E. Kingsbury, of Stevens Point, Wis., and Henry Fellenz, secretary-treasurer of the Theresa and Rock River Canning Company. Officers are to be elected at a later meeting.

Mr. Mader has been instrumental in organizing the company and acted as chairman of the meeting. William F. Wolf, fiscal agent of the company, served as temporary secretary.

Employment Gains in Paper Industry

Employment gains in the paper industry as compared to a year ago are shown by a recent survey of the Wisconsin Industrial Commission. This industry and others showed 1.2 per cent more employment in August this year but a somewhat lower average than obtained in 1924.

Wages also have shown an increase. The average weekly earnings amounted to $26.60 during August, 1928, as compared with $24.45 during July, and $25.94 during August a year ago. The average working period has been 48.3 hours a week. The wage basis runs about 53 cents an hour. The labor turnover was 7.9 per cent as compared to 8.0 per cent in August a year ago. The largest demand at employment offices has been for pulpwood workers to take care of the large incoming shipments throughout the paper mill areas.

Lawrence Anderson Married

Lawrence Anderson, employed by the Peshtigo Paper Company, Peshtigo, Wis., and Miss Mary Kabot, of Coleman, Wis., were married last week. Mr. Anderson returned from Chicago recently to become associated with the paper company.

More Paper Making Classes Started

Some of the paper mills of Appleton, Wis., have arranged to conduct classes in pulp and paper making right in their plants each week instead of having their employees attend night classes. The Riverside Fiber and Paper Company, and the Patten Paper Company, Ltd., are among those following this plan. Schedules are so arranged that men on all shifts may enroll. Arthur Bouffard, itinerant instructor of the vocational schools, teaches these classes.

Two evening school courses, one on wires and another on felts, are being conducted at Appleton under the direction of H. G. Noyes, state director of paper mill education. The course on wires deals with the making and installation of wires, their maintenance, the starting of new wires, and methods of prolonging their life. The course on felts deals with their manufacture, uses, functions, washing, increasing of life and their method of putting on and removal.

Classes also have been started at the vocational school at Kaukauna, Wis., with an extensive outline of subjects awaiting the paper mill workers who enroll. The instructor is A. T. Gardner, of the Combined Locks Paper Company. Beating, Fourdrinier machines, physical and chemical characteristics of paper, and paper finishing will be studied.

Ambrose Cater Passes On

Announcement is made of the death of Ambrose Cater, of Wausau, Wis. Mr. Cater has been a paper maker for twenty years, working in mills at Wausau and Brokaw, Wis.

Camp on Finch, Pruyn & Co.'s Woodlands

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 15, 1928.—The fourteenth annual forestry camp of the College of Agriculture held on the woodlands of Finch, Pruyn & Co., in the vicinity of Newcomb had an attendance this year of 26 seniors and one graduate student from the forestry college. The site occupied this year was the same as in former years and the camp was the scene of bustling activity for the four weeks of its existence. The success of the camp is attributed in a large measure to the cooperation of officials of Finch, Pruyn & Co. The paper manufacturing concern has done everything possible to encourage the forestry students in their studies.

The work of the camp this year was directed by Professors S. N. Spring, Cedric Guise and A. B. Recknagel, of the forestry college staff. Finch, Pruyn & Co. are engaged in cutting pulp timber in the vicinity of the camp which gave the students an excellent opportunity of studying cutting methods. The work included a survey and timber estimate of a square mile of forest, studies of the development and growth of various Adirondack trees and visits to the logging operations. The students also visited the state forestry nursery at Saratoga, the largest nursery of its kind in the world, and made an investigation of the region around Tupper Lake where timber cutting has been under way for many years.

Attendance at the annual forestry camp is required of all students for graduation in forestry from Cornell. The men in this year's group comprised the entire senior class. They lived in tents but took their meals and worked in a building erected by Finch, Pruyn & Co. for the use of the college.

Among the numerous visitors to the camp were Maurice Hoopes, president of Finch, Pruyn & Co.; L. F. Hyde, vice president of the paper concern; George F. Ostrander, manager of woodlands for Finch, Pruyn & Co.; Prof. R. S. Hosmer, head of the forestry department of Cornell, and Dr. Lars Romell, recently appointed professor of forest soils at Cornell.

Open Paper Box Plant at Bogalusa

BOGALUSA, La., October 15, 1928.—Two new half million dollar plants of the Garlord, Inc., manufacturers of paper boxes, began operation last month. Ivan Magnitzky is manager of the new factory and his assistants will be Brunot Hebert, plant engineer; T. M. Welch, superintendent, and Geylord Fauntleroy, efficiency engineer. No ceremonies marked the opening of the plant. However, a large number of citizens inspected the plant during the day. The first order to be filled at the new plant will be a carload of boxes consisting of 25,000 for the American Sugar Refining Company of New Orleans. Sufficient orders are on hand to keep the plant busy for the next several weeks.

Paper Board Industries Association Meets

Members of the Paper Board Industries Association met at the Palmer House, Chicago, on Wednesday, September 19, and Thursday, September 20, in Group and General Sessions. On Wednesday, September 19, members of the Folding Box Group met in the morning, with Vice-President H. S. Hinkle, President of the National Folding Box Company, New Haven, Conn., presiding. The meeting of the Paper Board Group, at which Vice-President E. R. Hankins of the Container Corporation of America, Chicago, presided, convened in the afternoon.

J. J. Brossard, of the Fort Wayne Corrugated Paper Company, Fort Wayne, Ind., Vice-President of the Container Group, presided at the meeting of that group, which was held Thursday morning, September 20.

The General Meeting of the three groups in joint session, attended by members of the Paper Board, Container and Folding Box Groups, was held Thursday afternoon, September 20. H. S. Hinkle presided at the general meeting, in the absence of President W. J. Alford, Jr., who is abroad.

General Meeting of the Three Groups

The General Meeting of the association, attended by members of the three groups, convened at 2:15 p.m., Thursday, September 20. As a first order of business, Chairman Hinkle announced that a meeting of the executive committee had been held on September 18. He submitted the report of the executive committee, which was unanimously adopted by the membership. In the executive committee's report, mention was made of all subjects considered by the Committee, including the following:

1. Association Finances.
2. Trade Practice Conference before Federal Trade Commission.
3. Representation at Annual Conference, Chamber of Commerce of U. S. A., Hot Springs, Ark., Oct. 8-9, 1928. Irving Hill, of the Lawrence Paper Mfg. Co., Lawrence, Kansas, has been requested to attend this conference as the official representative of the Paperboard Industries Association.
4. Membership Status.
5. Review of Conditions in the Industry.
6. Arrangements for Banquet in connection with Annual Meeting, New York City, on the evening of Wednesday, November 21.

The Downing Box Company of Milwaukee, Wis., was unanimously elected to membership in the container group.

Trade Practice Conference

The special committee appointed at the July, 1928, meeting to consider the subject of trade practice conference before the Federal Trade Commission reported that they had had three meetings and had adopted certain tentative resolutions which it recommended be submitted to the Federal Trade Commission for adoption, if the program and the resolutions are approved by the membership of the association.

Copies of the latest draft of the resolutions, which had been prepared following the meeting of the committee on September 18, were handed to members present.

The above subject was discussed in detail and a few changes were made in the suggested Resolutions.

The following resolution was adopted by the members in attendance at the meeting.

WHEREAS, at the July meeting of the association, a committee was appointed to draft resolutions defining certain practices which have been prevalent in the industry and condemning such practices as constituting unfair competition; and

WHEREAS, the committee, with the assistance of counsel for the association, has drafted certain resolutions which have been presented to the membership for their consideration; now therefore be it

RESOLVED, That the resolutions drafted by such committee be approved by the association, and that the officers of the association be directed to request the Federal Trade Commission to call the entire paperboard industry (including the mill, container and folding box divisions) to attend a trade practice conference, to be held as soon as the convenience of the commission will permit, for the purpose of considering and defining what practices prevalent in the industry should be condemned as unfair;

RESOLVED FURTHER, That the resolutions, submitted by such committee and approved by the association, be presented to the Federal Trade Commission at such conference for the approval of the Federal Trade Commission;

RESOLVED FURTHER, That such committee be continued, and that such committee represent the Association at such conference;

RESOLVED FURTHER, That such committee be given full power to make such preparation for such conference as may be deemed necessary, and if necessary to employ such expert assistance as may be required for that purpose;

RESOLVED FURTHER, That these Resolutions shall not be effective unless approved by mail within 20 days by a majority of the membership, after a copy of the suggested trade practice resolutions and a copy of this resolution shall have been mailed to the membership.

Copies of the suggested trade practice resolutions, as revised and as adopted by the members in session, have been mailed to all members, together with a form of ballot on which members are requested to record their individual vote.

Standardization Committee's Report

Chairman F. J. Kress, of the Standardization Committee, reported that, with the exception of one subject, all matters considered by the Standardization Committee at its meeting on September 18, had reference to Container Group subjects, report as to which had been made to the Container Group, which group had taken appropriate action thereon.

He stated that the committee wished to recommend that an additional supply of the Booklet of Standards be printed, incorporating therein the revisions adopted since the January 20, 1927, meeting, and in connection therewith the committee made certain suggestions.

Sales Promotion Committee's Report

Chairman J. H. Macleod announced that the Sales Promotion Committee had met on Tuesday, September 18, and that the report covering the activities of the Sales Promotion Department, in printed form, was being mailed to members. Because of lack of time, no detailed report on the subject of sales promotion was made at the meeting.

Economist's Report

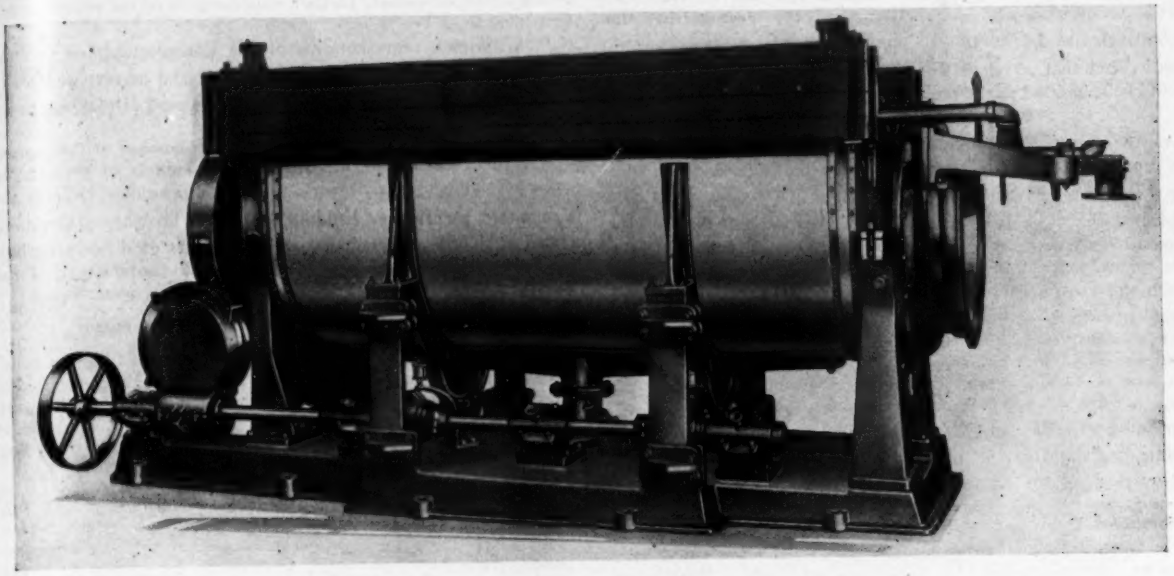
Chairman Hugh Strange, of the Statistical Committee, introduced Dr. E. O. Merchant, Economist, who submitted a report on the subject of "General Business Conditions and the Paper Board Industries," and the outlook for the future.

The Economist's remarks were supplemented by reference to charts depicting basic conditions in the paper board industries, as well as other charts showing the trends in the more or less analogous industries. The Economist's report was well received, and a copy has been sent to members with the minutes of the meeting.

General Manager's Report

General Manager Browder submitted a concise report of the principal activities of the Association since the July meeting. Specific mention was made of the following items:

1. General Association Activities.
2. Traffic and Classification Matters.
3. Trade Practice Conference.
4. Relations with the Navy Department in connection with the use of containers.
5. Inspection Service to Maintain the Quality of Corrugated and Solid Fiber Boxes.



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BIRD MACHINE COMPANY
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Massachusetts

Bird Screens

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The report concerning the inspection service was received with particular interest. It was the sense of the meeting that this activity should be continued vigorously during the next two months and that a report showing the findings as of that date should be submitted to the membership.

Folding Box Group Meeting

As the first order of business, Vice-President Hinkle called for report of the Sales Promotion Committee. Reporting in detail for the Committee, Sales Promotion Representative A. W. Luhrs explained the work being carried on under the direction of the Committee to inaugurate or increase the use of folding boxes. The report covered three specific articles, for the packaging of which the use of folding boxes is being substantially increased. Complete details, including the names of prospective customers, have been furnished to members.

In connection with the report on Sales Promotion, a discussion was had regarding a new form of competition for the folding box. A further study of this particular subject is to be made and everything possible will be done to safeguard the interest of the folding box industry.

Reporting for the Statistical Accounting Committee, Grafton Whiting, Statistician, covered the following subjects:

Standard Depreciation Rates for Folding Box Industry

The Commissioner of Internal Revenue, U. S. Treasury Department, has advised the association that the schedule of depreciation rates, recommended by the association for use in connection with income tax returns, has been formally approved. A letter from the Treasury Department, containing the following advice was read:

"The revised schedule, now being mutually acceptable to the Paper Board Industries Association and to this office, will be published at the earliest possible date for mutual guidance of the folding box industry and the personnel of the Bureau. At time of publication you will be advised as to the official reference to be cited by members of your association as authority for the use of the agreed rates and methods without substantiation and without adjustment."

Folding Box Census—1927

A copy of the census compilation of 1927 was handed to each member present. Mr. Whiting explained that the 1927 census had been compiled in the same manner as in previous years, but that the individual returns were more complete than heretofore. The detailed figures showed the relative production and consumption of folding box board in the several zones; the number of machines; the number of folding box plants, and the relative production of the large and small plants, etc.

Folding Box Charts

A copy of the Booklet of Charts was handed to each member present, Mr. Whiting explaining the charted operations. These charts depicted the following:

(a) Days to Run—(Business Ahead)

(b) Cutting and Creasing Presses—(Per Cent of Full Running Time)

(c) Printing Presses—(Per Cent of Full Running Time)

(d) Plant Totals—(Per Cent of Full Running Time)

(e) Seasonal Variations—(Actual operations compared with anticipated activity for the year)

The foregoing report was received with interest, members commenting favorably upon the fact that the Paper Board Industries Association, Folding Box Group, is the first association to have its recommended schedule of depreciation rates officially approved by the U. S. Treasury Department.

Paperboard Group Meeting

The Paper Board Group Meeting, presided over by Vice-President E. R. Hankins, was well attended.

Mr. Whiting, statistician, reported that the recommendations of the Paper Board Group had been transmitted to the Treasury Department, Washington, and that several points had been raised which would necessitate further consideration of the recommended schedule.

J. A. Grimes, representative of the Commissioner of Internal Revenue, was in attendance at the meeting and he reviewed briefly the activity being carried on by the Treasury Department, explaining the points of difference.

Following Mr. Grimes' remarks and a discussion of the subject, it was the sense of the meeting that the subject of depreciation rates should be referred back to the Association's Depreciation Committee for further handling with the Treasury Department. It is confidently expected that the few points of difference which now exist may be adjusted to the mutual satisfaction of the Treasury Department and the manufacturers of paper board.

Waste Utilization and Stream Improvement

A. B. Thomas, of the North Star Strawboard Mills, the chairman of the association's committee, announced that experiments are now being conducted at a mill which experiments will require a considerable period of time and that definite recommendation will be made by the committee as soon as the results of these experiments have been determined.

Chairman Hugh Strange, of the John Strange Paper Company, reported that the Statistical-Accounting Committee had held a meeting September 18, at which a number of subjects were considered. He directed particular attention to the accounting service which is furnished by the association's staff without cost to members. This particular service is considered to be a most important feature.

The following is a list of items which were reported upon and discussed:

(a) PROPOSED YEARLY CENSUS OF MANUFACTURES BY DEPARTMENT OF COMMERCE:

The Department of Commerce has inquired of the association as to the advisability of taking a yearly census of the industry and has inquired as to whether or not the association recommends that this be done. The meeting went on record as being in favor of notifying the Department of Commerce that, in its opinion, such a yearly census would be valuable.

(b) CENSUS—1927:

A copy of the 1927 Census compilation was handed to each member present and it was explained in detail. The figures showed the production in 1927 compared with 1926; the production of jute liner board, kraft liner board, chestnut pulp board and pine wood fiber board; volume of imported straw board, etc. The compilation also showed the output of the paper board mills subdivided as between the various grades of board; the production in the various zones; the number of machines and the number of companies; paper mill installation in 1927, 1928 and installation scheduled for 1929.

Figures were also included showing the relative production of the large and small companies, as well as comparison of activity as between combination and independent plants.

(c) PAPER BOARD GROUP CHARTS:

A booklet containing charts showing operations in the paper board industry was handed to each member present, and Mr. Whiting, Statistician, explained the charted operations. These charts depicted the following:

(a) Days to Run—(Business Ahead)

(b) Orders and Production—(The Relation of Orders to Production)

(c) Inch-Hours Operation—(The Percentage of Paper Board Mill Activity)

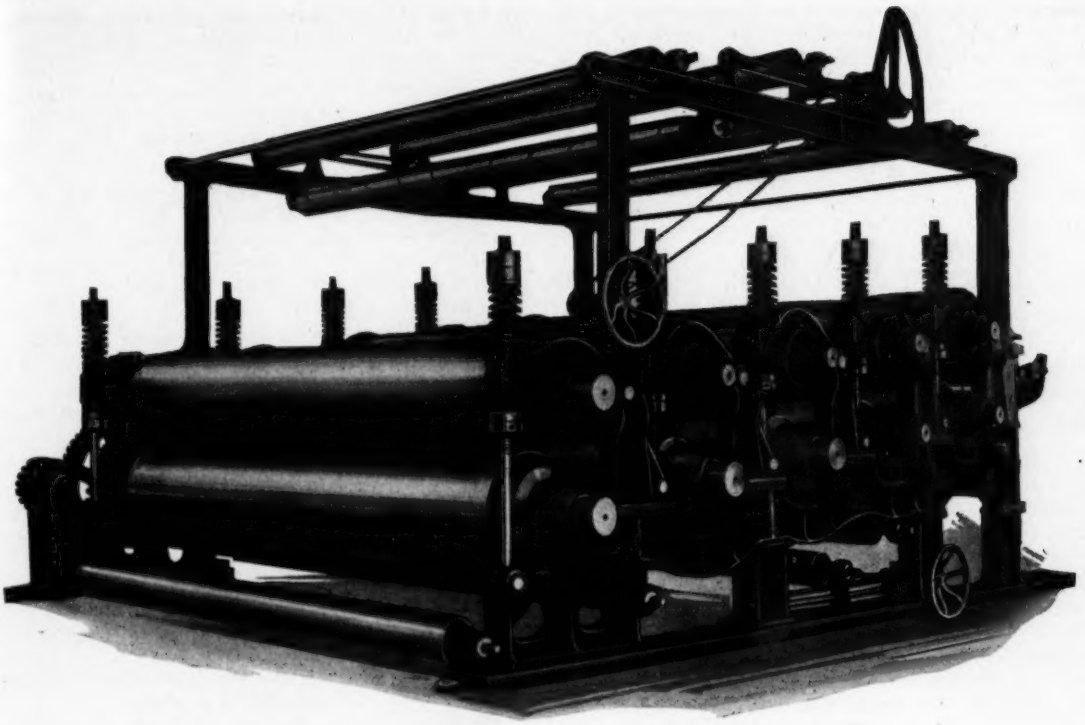
(d) The Waste Paper Situation

(e) The Pulp Situation

Container Group Meeting

The Container Group meeting, presided over by J. J. Brossard, was well attended.

General Manager Browder submitted a detailed report on subjects of particular interest to the Container Group. The report



Insulating Board Machinery For A New Industry

New Problems or at least the old problems in new and different phases.

The forming of pulp so "free" that it is hardly pulp at all, in the paper making sense.

The pressing of a continuous sheet ½ inch or more thick when finished, containing an enormous amount of water—no crushing, no bending, tender handling but definite results.

The drying—continuous, even, without buckling and with a surprisingly low steam consumption.

Get Interested if you have waste fibres of any kind, chips, saw-mill waste, pulp screenings, corn stalks, bagasse. Send them to us for a commercial test.

Our Products Meet Our Promises

DOWNINGTOWN Manufacturing Company Downingtown, Pa., U. S. A.

CAN. REP. FOR KILBERRY SUCTION ROLLS CHAS. WALMSLEY & CO. CANADA LTD. MONTREAL, QUE.

made mention of three changes soon to be authorized in a Supplement to the Freight Classification, which will open up substantial additional business to the corrugated and solid fiber shipping container industry.

Included in the report was also a review of a number of proposed changes in corrugated and solid fiber box specifications, which proposals will be considered by the Consolidated Freight Classification Committee at hearings scheduled for the month of October. The report contained detailed advice regarding a number of specific articles, for which oversize and overweight packages have been requested by interested shippers.

Members discussed quite fully the subject of proper specifications for fiber boxes of greater size and to carry heavier weight limits than at present authorized. It was the sense of the meeting that whenever boxes of the proper type are developed and shown to be satisfactory for the heavier weights, the association will make the proper presentation to the Classification Committee looking to the authorization of such boxes.

Inspection Service

A detailed report was submitted showing the situation to date, all of which is contained in the record of the meeting, which has been mailed to members.

Members voted to make a few minor changes in the method of procedure and these changes have been put into effect. The members present at the meeting expressed themselves as being heartily in accord with the general plan, the purpose of which is to eliminate the use of any boxes which may fail to meet the carriers' specifications.

Report was made that the association's recommended schedule of rates, which had been discussed at the July meeting, had been duly transmitted to the Commissioner of Internal Revenue, U. S. Treasury Department, and that the Treasury Department had suggested certain revisions in the original schedule and have advised that if these revisions are made, the schedule will be approved promptly. J. A. Grimes, the representative of the Commissioner of Internal Revenue, was in attendance and he addressed the meeting.

After a discussion, it was the sense of the meeting that this general subject should be referred back to the association's Depreciation Committee for its further handling with the Treasury Department. It is believed that such differences as now exist may be readily adjusted in the near future.

Fiber Container Census—1927

The census compilation for 1927 was handed to each member. Mr. Whiting, Statistician, explained that the compilation had been drawn in a manner similar to that of previous years to permit a comparison of the various items. The census contained the following data:

(a) Tonnage output of Corrugated and Solid Fiber Containers.

(b) Mill Tonnage of Liner Board of Various Kinds.

(c) Production of Chestnut Pulp Board and Pine Wood Fiber Board for Corrugating.

(d) The Output of Mills, Corrugated and Solid Fiber Plants and Folding Box Plants in Each of the 14 Zone Divisions.

(e) The Number of Companies and Machines Operated.

(f) The Relative Importance in the Industry of Independent Operations and Combined Mill and Fabricating Plants.

(g) The Relative Production of the Large and Small Plants.

(h)) Percentage of Production of the Independent and Combined Plants.

A copy of the Booklet of Charts was handed to each member present, Mr. Whiting explaining the charted operations. These charts depicted the percentage of running time by months for corrugated and solid fiber; the production per machine hour, etc.

General Nominating Committee

The following were appointed as members of a General Nominating Committee, to nominate a President for election at the Annual Meeting of the Association, which will be held in New York City, November 21-22, 1928; namely:

Robert Gair, Jr., Robert Gair Company, Folding Box.

W. H. Richardson, The Richardson Company, Folding Box.

J. P. Brunt, Container Corporation of America, Paper Board.

Hugh Strange, John Strange Paper Company, Paper Board.

F. J. Kress, F. J. Kress Box Company, Container.

Samuel Samuels, American Corrugated Paper Products Corporation, Container.

Group Nominating Committees

The following is the personnel of the Nominating Committees appointed by the Three Groups to nominate a Group Vice-President and member (or members) of the Executive Committee for election at the Group Meetings to be held in New York City on November 21-22, 1928; namely—

Folding Box Group Nominating Committee

H. C. Campbell, Robert Gair Company, New York, N. Y.

E. T. Gardner, The Gardner & Harvey Company, Middletown, Ohio.

W. G. Latham, Fort Orange Paper Company, Castleton-on-Hudson, N. Y.

A. R. Morgan, The U. S. Printing and Lithographing Company, Cincinnati, Ohio.

H. H. Stonebarger, The Globe Folding Box Company, Cincinnati, Ohio.

Paper Board Group Nominating Committee

J. J. Gannon, The Ohio Box Board Company, Rittman, Ohio.

E. T. Gardner, The Gardner & Harvey Company, Middletown, Ohio.

E. R. Hankins, Container Corporation of America, Chicago, Ill.

C. E. Nelson, Mac Sim Bar Paper Company, Otsego, Mich.

Henry D. Schmidt, Schmidt & Ault Paper Company, York, Pa.

Container Group Nominating Committee

Irving Hill, Chairman, Lawrence Paper Manufacturing Company, Lawrence, Kans.

A. L. Brack, Brack Container Corporation, Rochester, N. Y.

H. C. Krannert, Inland Box Corporation, Indianapolis, Ind.

J. H. Macleod, The Hinde & Dauch Paper Company, Sandusky, Ohio.

S. K. Taylor, Illinois Glass Company, Alton, Ill.

Next Meeting

Announcement was made that the next meeting of the association, which is the Annual Meeting, will be held at the Waldorf Astoria, New York City, November 21-22, 1928.

Members were urged to make their plans to be in attendance at the Annual Meeting.

Jeffrey's New Bucket Elevator Catalog

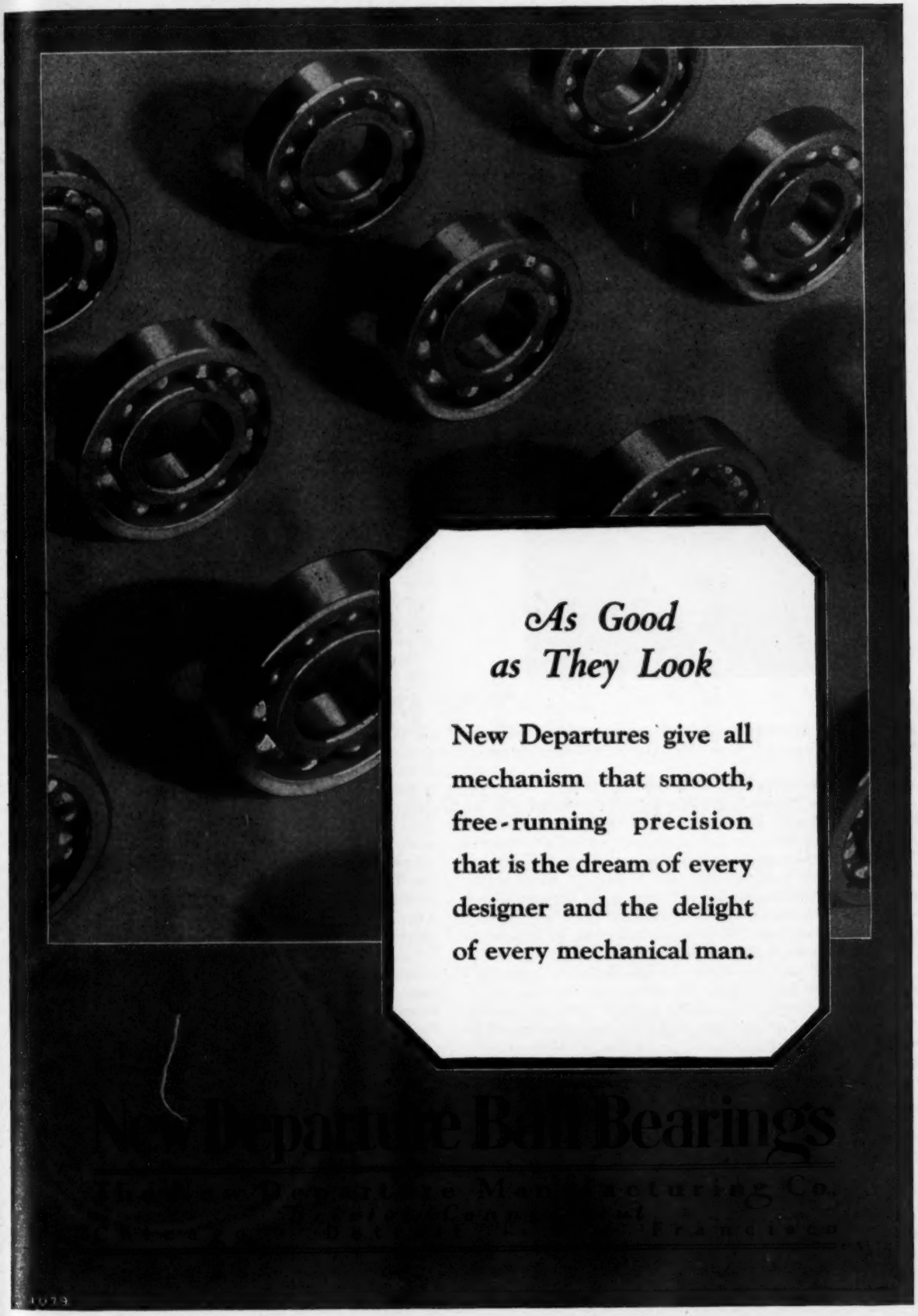
One hundred and eight-four bucket elevators of different styles or sizes, with capacities from six and one-half to seven hundred and fifty tons an hour, are offered in the new Bucket Elevator Catalog No. 465, now ready for distribution by The Jeffrey Manufacturing Company of Columbus, Ohio.

Thirty pages of engineering drawings illustrate the many types of chains, buckets and casings used in standard Jeffrey elevators; and twenty-two photographs show the elevators doing almost every sort of work an elevator may perform.

The catalog also lists forty-one typical materials, giving their weights per cubic foot of volume and designing the type of elevator best suited to lift them. Using this list, a manufacturer can easily decide which elevator will best handle his particular material.

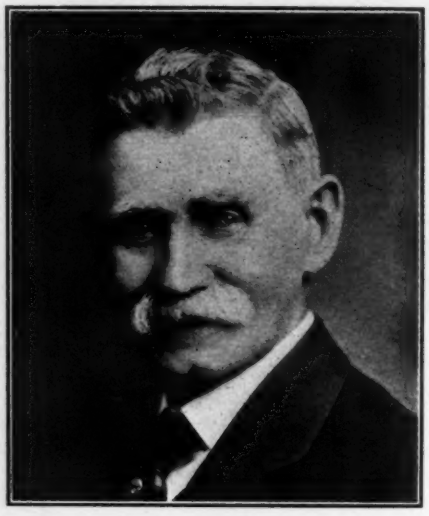
The catalog specifies steel casings in two forms, the riveted plate and angle and the spot welded flanged construction.

A new feature described in Catalog No. 465, page 45, is the Silent Ratchet Safety Lock that may be supplied with any bucket elevator. This device provides absolute protection against spilling a loaded elevator when an unexpected interruption of power occurs. It will prevent the heaviest load from slipping backward.


As Good
as They Look
New Departures give all mechanism that smooth, free-running precision that is the dream of every designer and the delight of every mechanical man.
Ball Bearings
Manufacturing Co.
San Francisco

Autobiography of an Old Paper Maker

Norman H. Stone, general manager of the Mosinee Paper Mills Company, Mosinee, Wis., writes: "Attached you will find a photograph of Michael H. Ward, one of our employees who has been active in the manufacture of paper since 1861, and who is now retiring to travel. You will recall I wrote the PAPER TRADE JOURNAL concerning this old employee and suggested that you start a campaign to determine whether or not he is the oldest paper maker in this country today. I am also sending a short story of his experience in the paper business thinking that you could probably use it or excerpts from it which might prove interesting to the trade in general. I regret very much not being able to get photographs of Mr. Ward in the mill and in his working clothes, but have found it impossible to get him into the mill long enough for this purpose."



MICHAEL H. WARD

Autobiography of Michael H. Ward

My career in the paper industry began in 1861, when I was fifteen years of age. I was first employed by the Hollings Paper Mills (four machines) of Lower Darwin, Lancashire, England. This mill made news print, book, wall paper and fine writing paper; they also stained their own wall paper. Rags of all kinds, ship sails, canvas, refuse—such as tow from flax and linen mills, were used in the production of the various papers. They also imported sparto grass from Spain. The use of straw in the manufacture of paper was unknown to me until I came to America.

After serving the Lord Hollings Paper Mills for six years, I left for Newton Lee Willows, Lancashire, approximately fifteen miles from Liverpool, where Glaspy & Mason owned a two machine mill. Mr. Cameron who had been superintendent at the Hollngs Mills had previously left for Newton Lee Willows and it was through him that I secured work with this company. I stayed with them a few years.

Booked Passage for New York in 1871

On April 12, 1871 I booked passage for New York City on the old England Steamship, the third largest vessel on the ocean at that time. The trip took seventeen days, two of which we were kept on board in quarantine for small pox. I arrived in New York City of April 29, 1871.

In a few weeks I secured work through Mr. Dixon of Dixon's wholesale paper house, at Millburn, N. J. This mill had only one small cylinder machine with eight dryers, and made news print for the *New York Sun*. Two months after I began working in this plant it was shut down for improvements. They were trying to develop a process to make carpet lining paper. Two vats were installed—one on the floor and one eight or nine feet higher—with a cotton batting machine between the two. The two sheets of paper and cotton batting met at the first press and by having the sheets of paper one inch wider than the batting, it permitted them to be sealed together and thus eliminated the necessity of a sewing machine. This was the secret of the process; but, after experimenting about four months without success, the plant was shut down again. A. T. Stewart, a large drygoods buyer, had made arrangements to purchase the entire output, should the enterprise prove successful.

At Reading, Pa., and Trenton, N. J.

I made several changes at short intervals after that; from Reading, Pa., to Trenton, N. J., and thence to Connecticut where I worked a few months in a leather board mill. They used genuine leather shavings from shoe factories and beat and brushed their fibers twenty-five hours in the beaters.

My next work was in a new mill, not quite finished, at Turner Falls, Mass. I was put at common labor until the mill started up. George Marchel was superintendent. This mill started up with one 70 or 80 inch Fourdrinier machine with a speed of about 150 feet and used 95 per cent rag stock and 5 per cent poplar ground wood. They professed, however, to use no ground wood whatsoever. At that time the superintendent was greatly pleased when the machine tenders turned out 18 tons a week. I stayed with this company, viz., the Montague Paper Mills, owned by other machine. It was considered a wonder machine, having ten Mr. Crocker, for eleven months. After I left they put in an-36 inch driers whereas most of the mills had only five or eight 28 inch driers.

My next move was to Packard Falls, N. H. This was a one cylinder mill which made wall paper and manila wrapper.

Arrived at Appleton in 1878

On October 1, 1878, I went West, arriving in Appleton, Wisconsin on October 4. The next day I commenced working for the Kimberly-Clark Company. I was one of the first beater engineers in their mill. They had two 65 inch cylinder machines and one 72 inch Fourdrinier, the latter being considered a very large machine in those days. They made news print and colored posters, using 85 per cent rag and jute stock and 15 per cent spruce ground wood. The mill was rated at 12 tons per twenty-four hours, but fell short occasionally. During the first ten years of my service for Kimberly-Clark this company built a new mill every other year, thus demonstrating that the paper industry was flourishing. After working for this company for twelve years the mill in which I was employed burned, and I was left without work.

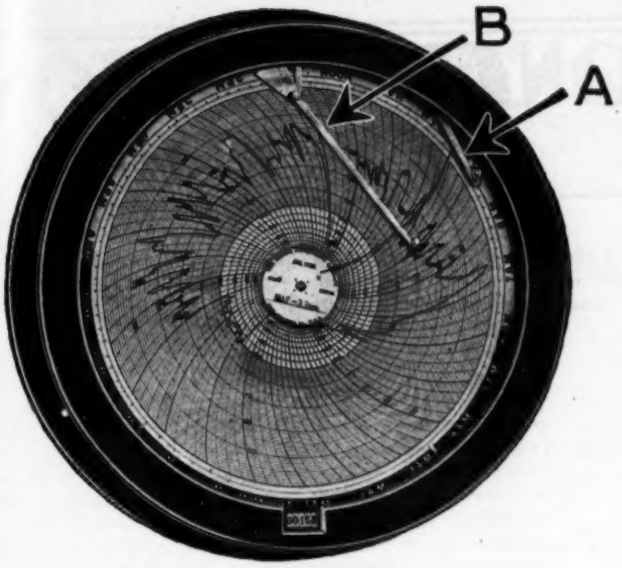
I secured a position as superintendent of the Kinney & McNulty Company at Rockford, Ill. They made No. 1 print and book paper from good quality rags. The machinery in this mill was all second hand, with the exception of one new Beloit Fourdrinier. The driers were unsatisfactory and caused many breaks. The company's inability to purchase better equipment at that time caused me to resign.

My next job was in a three machine mill at Batavia, Ill., which manufactured news print. I stayed there eight months and then returned to Appleton to work for Kimberly-Clark Company again. They had built a new straw mill which made all straw butchers wrapper. I remained there for eighteen months.

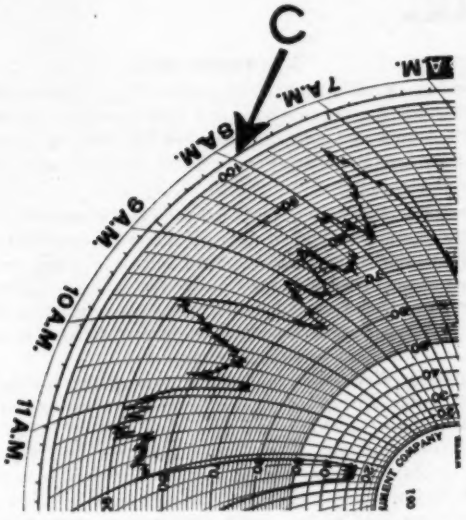
At Kaukauna

I then worked in the old stone mill in Kaukauna for a few years. They had two machines and used half rag stock and half jute butts and spruce ground wood. They made government maps and manila wrappers.

(Continued on page 60)



Probably the most valuable feature ever offered in a recording flow meter is the Brown Automatic Recording Planimeter, supplied, where specified, as an integral part of the Brown Recording Electric Flow Meter. Operation of this feature causes pen A (see above) to record AMOUNT *of flow in specified units, while pen B records* RATE *of flow. By simply counting the number of units recorded the total flow for any period may be determined direct from the chart record.* (C)



Right on the chart—

AMOUNT and RATE of steam flow

The Chief Engineer of a large paper mill told us the other day that he had had no idea that there was any instrument that would record information on a chart as to the total amount of steam used.

Get this right. The Brown Pyrometer not only records rate of flow on the chart, but records the AMOUNT of flow so that you can tell just how much steam was delivered to the line during any portion of the period covered by the chart.

In feeding steam to process units, prime movers in heating systems, this information is valuable from both an operating and accounting standpoint. It is one of the most useful features that has ever been offered in any flow meter and it is a feature that can be had *only* with the Brown Flow Meter.

Write for data or quotations on temperature, flow, pressure and liquid level measuring, recording or controlling instruments of special interest to gas production and distribution men. The Brown Instrument Co., 4457 Wayne Ave., Phila. Branches in 20 principal cities.

"To measure is to economize"—Pascal

Brown Electric Flow Meter

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Corning, N. Y.—The Corning Fibre Box Company has completed plans for construction of a new one-story addition to its plant reported to cost more than $40,000, with equipment. Bids will be asked immediately on general contract, and work soon placed under way.

Stockton, Cal.—The National Paper Products Company, Church street, is taking sub-bids for work in connection with new two-story plant addition, brick and reinforced-concrete reported to cost close to $90,000, with equipment, and will proceed with project at once. General contract was recently let to Barrett & Hilp, 918 Harrison street, San Francisco. Leland Rosener, 233 Sansom street, San Francisco, is engineer.

Appleton, Wis.—The Appleton Coated Paper Company, 1200 North Meade street, has superstructure in progress for its proposed new mill addition and has asked bids on additional subcontracts for roofing, sheet metal, plumbing and miscellaneous work. Contract for roofing and metal work has been let to the Northern Corrugating Company, Green Bay, Wis. New unit will be one-story, 107x240 feet, and is reported to cost close to $150,000, including equipment. C. R. Meyer & Sons Company, Oshkosh, Wis., is general contractor.

Philadelphia, Pa.—In connection with a new mill for the manufacture of gypsum wallboard products, etc., at Philadelphia, the United States Gypsum Company, 300 West Adams street, Chicago, is projecting a paper mill unit and will begin work on same, it is understood, as soon as gypsum products mill is completed. The new plant will be located on a 7½ acre tract of land at 58th street and the Schuylkill River, with entire project reported to cost more than $1,000,000. A permit has been issued for the razing of old buildings on site and work on new plant will soon begin.

Lynchburg, Va.—The Mead Pulp and Paper Company, Dayton, Ohio, and Kingsport, Tenn., is reported to have concluded negotiations for the acquisition of John H. Heald & Co., Inc., Lower Basin, near Lynchburg, Va., manufacturer of extracts, etc., and will consolidate with its organization. It is said that the merger will provide for the construction of a new paper mill in this vicinity at a later date with capacity of about 80 tons per day, to be carried out either in connection with present expansion program of the Mead company, reported to cost close to $1,000,000, or following this work.

New York, N. Y.—The Reliable Paper Box Company, Inc., has been organized under state laws with capital of $10,000 to take over and expand the company of same name with plant at 36 West 24th street. Incorporators are Harold Greenstein and Maxwell Sarner, 1245 Eastern Parkway, Brooklyn.

Menasha, Wis.—The John Strange Paper Company, Washington street, has awarded a general contract to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., for the construction of its proposed new one-story boiler plant, to cost about $24,000, and work on foundations will begin at once. Orbison & Orbison, 110 West College avenue, Appleton, are engineers.

Lockport, N. Y.—Following recent expansion of Flintkote Company, 31 St. James avenue, Boston, Mass., manufacturer of prepared roofing papers, etc., and purchase of a substantial interest in such company by the Royal-Dutch-Schell Company, London, England, arrangements have been made for the purchase of the Beckman-Dawson Roofing Company, to be operated in the future as a unit of the Flintkote organization. The acquired company has mills at Lockport, N. Y., Argo, Ill., and Detroit, Mich., and specializes in the production of prepared roofing papers, asphalt roofing, etc., with subsidiaries known as the Lockport Paper Company, Lockport; and Peck Asphalt Shingle Company, Detroit. It is understood that the consolidation will bring about a general expansion program including increased production facilities. A number of months ago the Flintkote company acquired the plants and business of the Richardson Company and the Chatfield Manufacturing Company, both specializing in the manufacture of prepared roofing papers, and which have since been merged with its organization.

Everett, Mass.—The Marvel Ice Cream Box Filler Company, recently organized with capital of $25,000, is said to be planning operation of a local plant for the manufacture of cardboard container specialties. New company is represented by William H. Dooley, 236 Main street, Everett, treasurer.

Appleton, Wis.—The Fox River Paper Company, South Appleton street, is roofing its new boiler plant addition and will complete equipment installation and place in operation at an early date.

Philadelphia, Pa.—The American Fibre-Velope Manufacturing Company, 229 North 63rd street, manufacturer of envelopes and other containers, has secured a permit for proposed new one-story addition to its plant estimated to cost about $25,000, with equipment, and will proceed with superstructure.

Richvale, Cal.—The Pacific Coast Pulp and Paper Company, recently organized with capital of $1,500,000, by D. M. Thomas, Santa Monica, Cal., and associates, has authorized work on superstructure for initial units of its proposed new mill on large tract of land acquired at Richvale, comprising one, two and three-story buildings for pulp and paper mill service, including power station, machine shop and other mechanical units. Plant will be electrically operated, and it is understood that machinery commitments are being placed. The mill will operate under a perfected process, using grape vine waste as raw material and the company has arranged for considerable tonnage of such material for initial operations. The entire plant is expected to be ready for service within four to six months, and is reported to cost close to $1,000,000, with machinery. Peter Swan, Lewis Building, Portland, Ore., is engineer for the project and will supervise construction; C. A. Kieren will act as superintendent of construction and will be in charge of equipment installation. General contract for present buildings was recently let to T. B. Hunt, 1510 30th street, Sacramento, Cal. Mr. Thomas is president.

East Angus, Que.—The Pyramid Paper Products, Ltd., East Angus, has plans under way for the construction of a new local plant unit, to be one-story, 42x275 feet, reported to cost close to

Bring us your HARD NUTS

...We like to CRACK 'EM!

OUR research and testing organization has just solved another vexatious problem for another paper mill superintendent....developed a way to a better finished, firmer sheet without radical change in equipment or added costs.

We've been doing this sort of thing for quite some time....not with a fanfare or flourish, but as a gesture of courtesy to some friend in the industry who had an idea but lacked the equipment to carry it through.

This department was established originally for testing and proving our own equipment. But more and more frequently it has been called on to solve a tricky point for some mill or individual who came to us for advice or assistance. It has shown a Southern mill a better way to utilize waste products from the cane fields; it has demonstrated to the government an improved method of preparing cellulose for explosives; again and again it has indicated time-savings and improvements which have been adopted successfully in several mills.

If *you* have a knotty problem, or a new slant on production, we'd be glad to try our wits and resources at it. Our equipment and technicians are at your command, confidentially, if you wish, and restricted only by our capacity. If you or the industry can benefit by their use, we shall feel amply repaid. Let us know how we can serve you.

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York

$45,000, with equipment. It is understood that bids will soon be asked on general contract. J. W. Gregoire, 86 Wellington street, North, Sherbrooke, Que., is architect.

Windsor Mills, Que.—The Howard Smith Paper Mills, Ltd., Cornwall, Ont., has preliminary plans under advisement for extensions and improvements in the mill of the Canada Power and Paper Company at Windsor Mills, recently acquired. This plant while primarily a kraft paper unit has been producing news print on the basis of about 50 tons per day, and the new owners plan to discontinue entirely this latter character of output, devoting the plant to the manufacture of kraft paper, wrapping papers and special colored stock, using bleached groundwood pulp as raw material. C. Howard Smith is president of the purchasing company.

Toronto, Ont.—The Hinde & Dauch Paper Company of Canada, Ltd., 45 Hanna avenue, Toronto, a subsidiary of the Hinde & Dauch Paper Company, Sandusky, Ohio, is said to be planning a call for bids before the close of this month for a proposed new addition to its Toronto plant. Unit will be four-story, 150x400 feet, reported to cost in excess of $200,000, with equipment, and will develop large increase in present output. R. Cook is company engineer at Toronto.

New Companies, Etc.

Providence, R. I.—The Standard Paper Company, 14 Steeple street, has been organized to deal in paper products. The company is headed by D. Pulner, 158 Oakland avenue, Providence.

Elbridge, N. Y.—The Junction Mill Supply Company has been incorporated with capital of $10,000, to deal in finished and waste papers, etc. The company is represented by Milford & Major, Skaneateles, attorneys.

Muskegon, Mich.—The Michigan Box Company has filed notice of company dissolution under state laws.

New York, N. Y.—The Hefler Folding Box Corporation, New York, has filed notice of change of company name to the Hefler Folding Carton Corporation.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 17, 1928.—The Government Printing Office has received the following bids for 2,135 pounds of 21x32—46½ russet bond paper: American Writing Paper Company, at 21 cents per pound; Barton, Duer & Koch Paper Company, 19 cents; R. P. Andrews Paper Company, 18 cents; Walker Goulard Plehn Company, 22 cents; and Atlantic Paper Company, 19 cents.

The Printing Office will receive bids on October 19 for 15,400 pounds (43,500 sheets) of No. 1, 26x42 white rope drumhead manila paper.

The following paper awards have been announced by the Government Printing Office:

The Atlantic Paper Company will furnish 34,000 pounds of calendered tag board in 23½ inch rolls at 7.72 cents per pound, bids for which were received on September 17.

The R. P. Andrews Paper Company will furnish 50,000 sheets of 12x18 inch manila tissue paper at 7.5 cents per pound, bids for which were received on September 7. The same firm will also furnish 1,500 sheets of 26x43 sensitized paper, sensitized on one side only at $30.65 per ream, bids for which were received on September 5.

The Nashua Gummed and Coated Paper Company will furnish 5,100 sheets of 21x34 inch sensitized paper at $25.00 per M, bids for which were received on August 8.

Rose City Label Co. Incorporates

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., October 12, 1928.—Rose City Label Company, Portland, Ore., has been incorporated for $20,000 by Walter J. Frie and Blanch M. Frie. The company will manufacture and print specialty labels. Articles were filed by Huntington, Wilson & Huntington.

FINE PAPER MAKERS TO MERGE

(*Continued from page 13*)

the company has developed 15,000 h.p. with which the mills are operated. This will be increased to 25,000, and below the falls extending to Masson there can be developed a further 125,000 h.p. When the demand for power warrants it, the company will erect another power plant to develop this electrical energy.

The construction work of the big plants will be under the personal direction of W. I. Bishop, and Col. Alan McEwen is the chief engineer. Plans for the development were prepared by Hardy S. Ferguson, consulting engineer.

The James Maclaren Company which is the backbone of the Buckingham district, was founded by the late James Maclaren in 1864, and has been in continuous business for sixty-four years. Albert Maclaren, a son, is now the president of the company.

Stock Bonus From Power Company

The Shawinigan Water and Power Company, which supplies many of the leading paper mills in Quebec with power, has announced a stock bonus of one fully-paid up share to every ten shares of stock owned by shareholders of record on October 12. In explanation, the company states that for some years past it has made important investments in the shares and securities of various subsidiary and other companies. These shares and securities have increased in value.

The directors of the company felt that part of these equities may properly be capitalized and a distribution made to shareholders in the form of a stock bonus.

As a result of this, Canada Power and Paper Corporation, which owns 72,000 shares of Shawinigan, will receive 7,200 additional shares, which at current market levels have a value of nearly $700,000.

Brown Corp.'s Power Rights

Current gossip credits the Shawinigan Water and Power Company with having acquired the power site of the Brown Corporation at La Tuque, on the St. Maurice River in Quebec. The site has a potential capacity of 140,000 hp., but at the moment only 4,400 hp. is developed to operate the Brown Corporation's sulphate pulp mill, which has a daily capacity of 240 tons of sulphate pulp.

This rumor is given with reserve. If true, it means that Shawinigan will own outright all the power sites on the St. Maurice River.

New Mill Construction

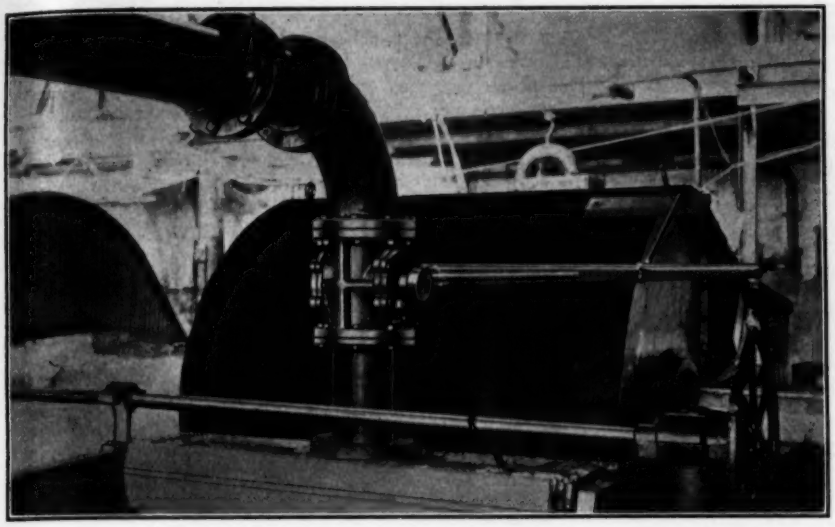
The Fraser Companies, Ltd., are to start work this month on the construction of a $2,500,000 bleached sulphite pulp mill at Athol, a suburb of Campbelltown, N. B. The concrete foundations are to be completed this fall and steel structural construction started in the spring. The mill will have a daily capacity of 150 tons and will require about 100,000 cords of pulpwood annually as supply of raw material. It is expected that at least 250 men will be given continuous employment and the main mill, comprising conveyors, digesters and power plant are to be completed next year so that operation may be commenced before the close of 1929.

Big Lawsuit Settled

From Fredericton, N. B., it is announced that the suit at Chancery of Sir James Dunn vs. Angus McLean and the Bathurst Company, in which action for $110,000 was brought by the plaintiff as the result of an alleged abrogation of an option on two thousand shares of the company stock, has been settled by the principals in the case.

The terms of settlement were not made public, Sir James Dunn and August McLean having agreed that nothing concerning the matter would be given out.

The $110,000 asked by the plaintiff represented the difference between $50 a share for two thousand shares, the price specified in an option claimed by Sir James Dunn to have been taken by him, and $110 a share, for which the stock was finally sold.



Especially adaptable for use in difficult positions. Installation view of Valley Plug Valve.

In operation Valley Plug Valves are positive—no auxiliary handles needed to open or close them—the lever is attached directly to the plug.

Economy of Operation

Valley Plug Valves are less intricate in construction than ordinary valves—original cost to user is less and the cost of operation is practically nothing. Once installed Valley Plug Valves are there to render long and useful service.

Economy of operation makes these valves the accepted valves in the paper industry today. Now 1400 are in use throughout the country. As many as fifteen repeat orders have come from one mill after the first installation.

Plug Valves of standard type are made with cast iron body and bronze rotors. We can also furnish all bronze valves or all iron valves.

Let us tell you more about Valley Plug Valves. Our special booklet on valves will be sent you upon request.

VALLEY
Equipment Includes

Beaters: Holland and Niagara
Deckers: Single and Double
Agitator Equipment
Screens: Flat and Rotary
Pumps: Centrifugal and Stuff
Cylinder Paper Machines
Voith Stock Inlet
Laboratory Equipment
Stock Valves: 2 and 3 Way
Stock Consistency Regulators
Beater Rolls and Fittings
Digester Fittings of all Kinds

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue
Western Manufacturing & Sales Division: Smith & Valley Iron Works Co., Portland, Oregon

New York Trade Jottings

Frederick C. Clark, of South Manchester, Conn., was a New York visitor last week.

* * *

S. D. Wells, of Quincy, Ill., was in New York on October 11, after visiting for several days in New England.

* * *

R. H. Laftman, general manager of the Bogalusa Paper Company, arrived in New York from Sweden on October 10.

* * *

Y. Fukukita, purchasing manager of the Oji Paper Manufacturing Company, of Japan, was a visitor in New York last week.

* * *

P. Sandwell, chief engineer of the Powell River Company, British Columbia, and his wife, are spending a few days in New York this week.

* * *

B. M. Thomas and H. L. Joachim, of the Container Corporation of America's mill in Philadelphia, were in New York on Wednesday last.

* * *

Tore Nilsson, who has been the American Scandinavian Fellow at the Bogalusa Paper Company's mill in Louisiana, sailed for Sweden on October 13 from New York.

* * *

Kozo Suehiro, superintendent of the sulphite mill of the Oji Paper Manufacturing Company, of Japan, was a visitor at the Technical Association office on October 10. Mr. Suehiro is planning to visit many mills in Canada and the United States.

* * *

W. E. Johnson, vice-president of Marschalk and Pratt, Inc., gave his point of view on the trends of newspaper, periodical and direct mail advertising at the last regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry held at the Canadian Club last Monday.

* * *

Leslie K. Bickell, of the British Columbia Pulp and Paper Company, of Port Alice, B. C., has been accepted by the Joint Committee of Approved Pulp Testing Chemists for the Paper Industry of the United States, with headquarters at 18 East 41st street, New York, as an approved mill pulp testing chemist and is listed as such, effective October 2, 1928.

Edgar Bros. Co. Starts Service Department

Edgar Brothers Company, producers of domestic, high grade filler and coating clays, 50 Church street, New York, have started a new service department which it is believed will be widely appreciated in the paper industry.

The company has engaged the services of O. W. Callighan, who has been chief chemist for one of the largest paper mills in the Kalamazoo Valley district for some years past and who has had much to do with the application of the company's American clays.

Mr. Callighan is a graduate of the University of Maine, having taken the paper courses there. He has also worked in a paper mill and is thoroughly capable of going to a paper plant and helping to solve any problems in the use of American clays.

Carthage Paper Board & Pulp Co. Entertains

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., October 15, 1928.—Officials of the Carthage Paper Board and Pulp Company entertained local railroad officials and office employees last Thursday at a dinner at the St. Regis Inn, Deferiet. Before the dinner the party made a tour of the St. Regis plant. The dinner was well arranged and was fully enjoyed. Brief remarks were made by several speakers. Among the officials of the paper concern attending were President W. C. Rowell, Vice President and General Manager James Quinn, Office Manager R. W. Thomas, all of Carthage, C. A. Bear, of Philadelphia, and J. Driscoll, of Watertown.

Flintkote Begins Expansion Program

The Flintkote Company, of Boston, announced last week that it had acquired the Beckman Dawson Roofing Company. This is the first step in the Flintkote Company's program of expansion in the fields of asphalt roofing, emulsion and allied asphaltic products, and follows swiftly upon the recent announcement of Flintkote's alliance with the Royal Dutch Shell group of companies, a partnership designed to facilitate the expansion of Flintkote business over both the international and domestic fields. About two years ago Flintkote acquired the roofing businesses of the Richardson Company and the Chatfield Manufacturing Company.

The addition of this fast growing concern to the Flintkote group of companies brings Flintkote total sales volume close to the $19,000,000 mark.

The Beckman Dawson Roofing Company, has within the past two years taken over the Peck Asphalt Shingle Company, of Detroit, Mich., and the Lockport Paper Company of Lockport near Buffalo, N. Y., giving it three roofing plants and a felt mill. Its headquarters are at Chicago, Ill.

There will be no change in the conduct of the Beckman-Dawson business, which will be operated just as in the past, by the present Beckman-Dawson management and organization. Representatives of the Flintkote group will be added to the Beckman-Dawson board of directors.

As expressed by Mr. Beckman the governing purposes in this association with Flintkote was to make available to his organization and his customers the benefits of Flintkote marked progress in research and developments and also full participation in the advantages accruing to Flintkote and its associated companies and their customers, from its affiliation with the Royal Shell Group.

Announcement of this latest acquisition by Flintkote was not unexpected by the industry. There is reason to believe, according to sources usually well informed that announcement of other increases in the membership of the Flintkote group may be looked for in the near future.

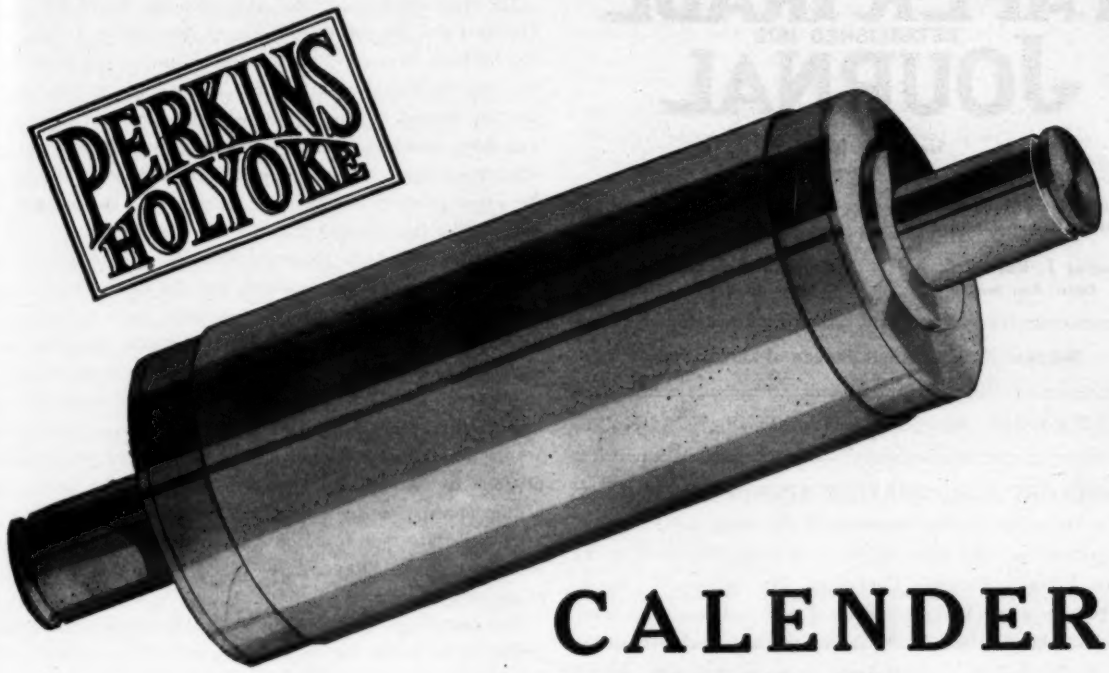
Boston Paper Market Firm

BOSTON, Mass., October 15, 1928.—Firmness prevails in the wholesale paper market here, with possibly an increasing demand as a whole. Some regard the situation as even better than it was. At least a fair volume is reported in practically all quarters, in both fine and kraft papers.

Box board dealers report a generally good business. The box manufacturers have had a substantial amount of orders in the aggregate from retailers and smaller dealers, who do not usually buy their supplies until later in the season than the large establishments. Frequently the orders from the smaller retail stores are placed with a request for rush shipment, and this may mean rush shipment of box board.

It is stated that the margin between the cost of waste paper for the manufacturer of chip board and the finished product is less than at one time. Formerly the waste paper could be secured at $8 a ton, f.o.b. shipping point, with price of chip board at $45. At the present time, the waste paper costs $12 to $13 a ton, and for some time chip board was at $42.50, although of late $45 has been quoted. Complaint is made that money is tight, with collections poor.

Old papers, bagging and rags remain steady, with an upward tendency in some grades. There is an strong demand for old newspapers, which have advanced, and are now quotable at .75 to .80, compared with .70 to .75 a week ago. No. 1 mixed paper also has a rising tendency, and from a flat price of .60 has advanced to .60 to .65. A "regular" business is current on other grades of paper stock. Some of the dealers feel optimistic over the situation.



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PAPER TRADE JOURNAL
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SUPPORT FOR FORESTRY APPROPRIATION

Major Oliver M. Porter, secretary of the American Paper and Pulp Association, who with Mr. R. S. Kellogg, chairman of the National Forestry Program Committee, Mr. George W. Sisson, Jr., president of the Racquette River Paper Company, Pottsdam, N. Y., and others appeared in Washington last week before Director of the Budget, General Lord, in connection with needed appropriations for National forestry work for the fiscal year 1930, presented a strong argument for an adequate appropriation.

Notable among the provisions of the McSweeney-McNary bill is the expansion of research facilities at the Forest Products Laboratory and the regional Forest Experiment Stations. The investigative work at the Forest Products Laboratory gives great promise of increasing pulp yields and qualities, and is rendering more exact the control of the many variables which exist in paper making. The experiment stations, particularly those in the Northeast, have undertaken forest studies which will materially assist paper companies in the management of their lands. Both of these investigative lines integrate thoroughly with independent research work of the industry and with the progress of the industry as an industry and as a means of public welfare.

The American paper and pulp industry has consistently urged the expansion of research facilities by the Federal government. Before the McSweeney-McNary bill was proposed, the industry, through the American Paper and Pulp Association, was represented at the appropriation hearings in Washington. This was followed up annually by correspondence with executives in the paper industry, urging them to use their influence with Senators and Representatives in order that these appropriations might be authorized. There is no doubt but that this action assisted materially in making possible the growth of research by the Federal government between 1915 and 1928.

When the McSweeney-McNary bill was introduced into Congress, the American Paper and Pulp Association immediately got in touch with the National Forestry Program Committee, of which Mr. R. S. Kellogg was chairman, and offered its full assistance. The Association was well represented at the hearings on this bill in both the houses, and was extremely active in subsequent effort to get favorable reports upon this bill.

The Association cooperated fully with the Society of American Foresters and the American Forestry Association, as well as with the National Forestry Program Committee in this effort to further constructive forest research legislation. It has been said that the support of this bill given by the American paper industry was more constructive and of greater assistance than that of any other wood-using industry. There is no definite measure of what the paper industry accomplished in regard to the passage of the bill, but the fact remains that the bill was passed.

Research is basic to the paper industry. The origin of the industry is associated with research, and the steady improvement of processes and equipment which has taken place is based entirely upon scientific investigation. It is probable that the industry spends over $5,000,000 annually in scientific research work. The fundamental character and thorough pursuit of research in paper manufacture conducted at the Forest Products Laboratory has been a tremendous stimulus and assistance in the development and progress of research by individual mills. For the further benefit of the industry and for the promotion of public welfare, it is most important that funds be made available as soon as possible in order that the authorized research program may be carried out in entirety.

The annual appropriations for Forest Products work, conducted chiefly at the Forest Products Laboratory, Madison, Wis., is about $500,000 at present. The McSweeney-McNary bill calls for doubling this amount. The present appropriations for the work in pulp and paper at the Forest Products Laboratory amount to about $75,000. Within ten years, under the McSweeney-McNary bill, this would be increased to $150,000. Although a gradual 10 per cent increase yearly will accomplish much, the interests at stake in this instance demand a more rapid increase in annual allotments to prevent needless waste of timber and to permit continued operation of many mills, as well as the fullest use of the present research facilities of the Government laboratories and forest experiment stations.

There is a similar urgency in the case of the Forest Experiment Stations, in the Timber survey, in the development of work on economic research and in many other lines, but in these cases it is not so easily possible to expand facilities more rapidly than the proposed 10 per cent a year schedule. Yet even here every effort should be made to meet the situation fully and completely in a relatively short time.

Forests are especially essential to the United States. They have contributed greatly to the founding of our social and industrial position in the world. They will always be important in the production of essential raw materials for our wood-using industries. It is in the public interest that adequate means for forest perpetuation be undertaken as soon as possible.

This is especially important in the study of economic conditions which affect timber growing. The paper industry is particularly interested in data upon the costs and returns of timber growing and in the determination of the extent to which forestry is now profitable and can be made in the future. This is a specific field in which federal agencies may contribute much to assist the forest owners in general and the public at the same time. Until we are more certain of the chances of reasonable profit in timber grow-

ing, there will be few whole-hearted attempts to grow timber in a commercial way. The determination of these data, which must correlate a large amount of purely technical research, is of particularly vital public significance and is basic to successful forestry practice by the paper industry.

The American Paper and Pulp Association, through its Woodlands Section, is now fully launched upon a study of the extent to which forestry is feasible in the paper industry. This is the first study of such a nature to be inaugurated by an American wood-using industry. It is concrete evidence of the interest of our industry in this matter. In this study the results of federal research will be of great importance. These and other facts indicate the vital importance of carrying out the full intent of Congress as indicated in the McSweeney-McNary bill.

The PAPER TRADE JOURNAL believes that all of the amount asked for this year by Chairman Kellogg is needed and we are confident that this belief is generally shared by pulp and paper men. Members of the industry therefore should write their Senators and Congressmen to work for the appropriation.

Start Strike at Spruce Falls Mill

ALBANY, N. Y., October 15, 1928.—Announcement was made at the headquarters of the International Brotherhood of Papermakers here early this week that a strike had been called at the Spruce Falls Power and Paper Company at Kapuskasing, Province of Ontario, Canada. The strike was sanctioned by the executive board of the Brotherhood after an investigation of conditions complained of by the employees at the Spruce Falls plant. About sixty papermakers holding membership in the unions participated in the walkout.

The union claims that the strike was brought about because of the company's action in discharging six men employees who were elected as officers in a local union recently formed in the Canadian town by Frank P. Barry, first vice president of the International Brotherhood of Papermakers. This strike, according to official sources, is the first to be called by the Brotherhood since the long drawn out wrangle with the International Paper Company was terminated in March, 1926.

Vice President Frank P. Barry has taken charge of the strike situation at the Spruce Falls mill. William R. Smith, president of the Brotherhood, left the union headquarters here and made a special trip to New York City in connection with the strike. It was intimated that his trip to the Metropolis was for a conference with officials of the *New York Times* which is said to be a part owner of the Spruce Falls Mill. It was expected here that President Smith will proceed from New York to Ottawa to place the matter before the Canadian Minister of Labor.

All local unions affiliated with the International Brotherhood of Papermakers have been informed through the Albany headquarters of the existence of the strike at the Spruce Falls Mill.

Until a few weeks ago the paper mill workers in Kapuskasing were unorganized. Frank P. Barry was sent to the Canadian town as a special organizer and succeeded in enrolling enough workers to secure a charter from the Brotherhood. Upon receipt of its charter the new union met and elected officers and immediately thereafter the union alleges that executives of the Clark-Kimberley Company discharged without notice six employees of the plant who were known to have been elected officials of the union.

Federal Paper Mills Increase Stock

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., October 12, 1928—Federal Paper and Board Mills of Portland, Ore., has increased its capital stock from 5000 shares no par value to $200,000 preferred stock and 6000 shares no par value common stock.

Program for Cost Meeting

The program for the twentieth semi-annual meeting of the Cost Association of the Paper Industry to be held at the Statler Hotel, Cleveland, Ohio, October 25 to 26, is as follows:

THURSDAY, OCTOBER 25

Opening Session

9:00 A.M.—Registration.
9:30 A.M.—Opening address by President Knott.
10:00 A.M.—"Standard Costs in a Book Paper Mill," Breck Aspinwall, Cost Accountant, Oxford-Miami Paper Co.
10:45 A.M.—Discussion.
11:00 A.M.—"Air Dry" or "Bone Dry," A. M. Van Douser, Asst. Secretary and Treasurer, Marathon Paper Mills Co.
11:30 A.M.—Discussion.
12:00 Noon—Adjournment for luncheon.

Afternoon Session

2:00 P.M.—"Fixed Assets and the Plant Ledger," A. W. Astley, Cost Accountant, Chemical Paper Manufacturing Co.
2:45 P.M.—Discussion.
3:00 P.M.—"How Well Do You Know Your Property?" H. G. Baldwin, American Appraisal Co.
3:45 P.M.—Discussion.
4:00 P.M.—"How to Handle Losses Covered by Insurance Policies," Reed B. Timmers, Albany, N. Y.
4:30 P.M.—Discussion.
5:00 P.M.—Adjournment.
6:00 P.M.—Banquet. Chairman, President Knott.

A theatre party will be arranged following banquet. Those desiring to attend should notify Secretary-Treasurer not later than Saturday, October 20.

FRIDAY, OCTOBER 26, 1928

Morning Session

9:00 A.M.—"Statistics as Applied to the Paper Industry," Stanley Byron, Statistician, Hammermill Paper Co.
9:45 A.M.—Discussion.
10:00 A.M.—"Operating Control Through Efficient Cost Methods," James A. Reilly, Manager, Cost & Inventory Department, American Writing Paper Co., Inc.
10:45 A.M.—Discussion.
11:00 A.M.—Business Session: "Cost Association Plan for Organization of Pulp and Paper Industry on Sound Cost Basis."
Appointment of Committees.
12:00 Noon—Adjournment for luncheon.

Afternoon Session

2:00 P.M.—"Shrinkage?" C. M. Baker, Engineer, American Paper & Pulp Association.
2:45 P.M.—Discussion.
3:00 P.M.—"Some Dennison Institutions Affecting Labor Turnover," M. F. Carpenter, Asst. Employment Manager, Dennison Manufacturing Co.
3:45 P.M.—Discussion.
4:00 P.M.—Secretary-Treasurer's Annual Report.
Election of Officers for 1929.

Record for Starting Paper Machine

James L. Carey, engineer of Chicago, has written Dominion Boxboards, Ltd., of Toronto, Ont.:

"I have gone over some of the dates in connection with the erection of your mill.

"Work was started on October 20, 1927. The first board was made July 17, 1928. This is less than nine months. This is the shortest construction time I know of for a mill of its size.

"When starting up, the stock was turned on at 1:30 p.m.; the paper was on the cutter at 2 p.m.; the paper continued until 3:30 p.m. without a break. In my opinion, this is a world's record in starting paper machines of this size."

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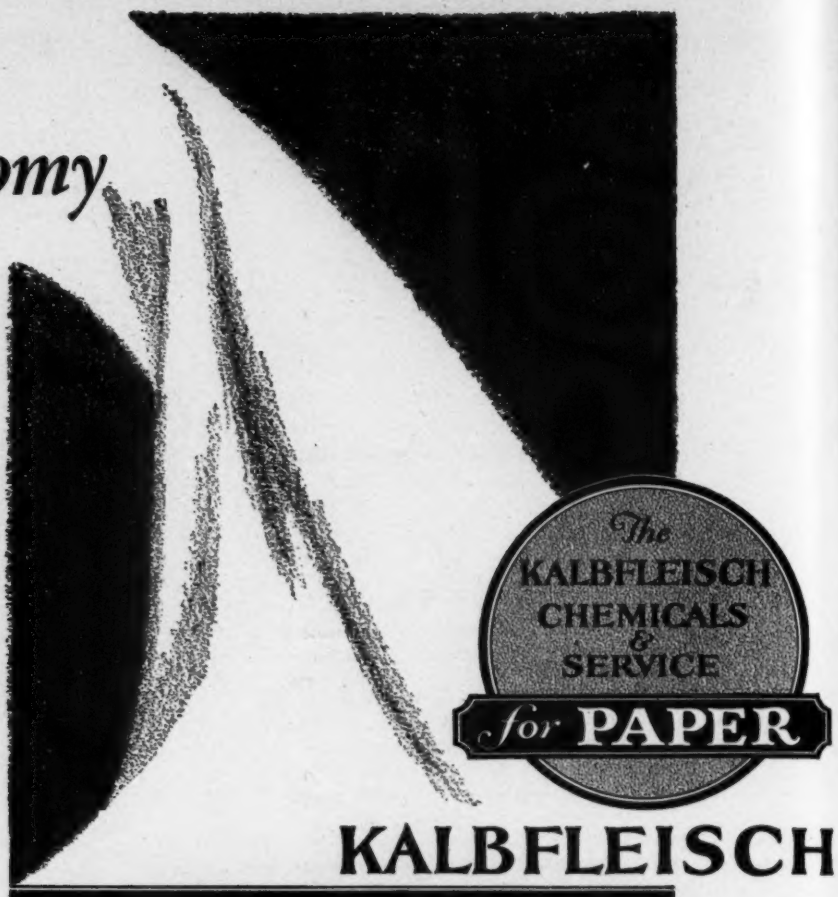

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Alkaline Pulp Mill Control Problems*

By C. K. Textor[1]

The laboratories established in the various soda and sulphate pulp mills have given a great deal of attention to chemical and physical methods for the control of process work and in general have met with success. Methods for analysing cooking liquors, for determining the loss of soda in lime sludge, for estimating the bleachability of pulp, and for many other similar purposes have been worked out by most mills to their own satisfaction. and many of them have become standard. But methods for measuring the value of the chief raw material and the product, that is pulp wood and wood pulp, have been very slow in developing.

The development of an adequate method for evaluating the paper making properties of a pulp constitutes, in the opinion of many operators, the most important present day problem in the control of the soda and sulphate processes; particularly is this true in regard to kraft pulp. Such a method should enable one to predict the behavior of any pulp on a paper machine and to predict the quality of paper which can be made from it. A successful test of this type would add enormously to the value of research in cooking wood, and incidentally would be a big step in the direction of beater control.

From laboratory scale cooking investigations we have reasonably accurate data regarding the effects of such variables as steam pressure, concentration of chemicals, sulphidity, etc., upon yields of pulp and screenings, and upon color and bleachability of product. In some of these investigations additional data pointed at the paper-making qualities of the pulp are obtained from ball mills, miniature beaters, freeness testers and chemical tests such as bleachability and cellulose content. While these tests serve to indicate considerable differences, as between different process of cooking or between spruce and jack pine or hemlock, unfortunately the commercial evaluation of the fibre is in general left to the actual production of paper from it on the paper machine, which gives us no indication of how much the finished paper owes to the inherent qualities of the pulp and how much to the beating and paper making operations.

Laboratory determinations of pulp strength have been the subject of considerable investigation in recent years and a good many mills have established such strength testing as part of their regular routine. However, it is the consensus of opinion among operators that these tests are not generally adequate, though in some special cases they seem to be satisfactory.

Interpreting Laboratory Results

There is a frequently expressed idea that uniform strength tests as made in the laboratory imply uniform pulp and the expectation that uniform paper will be made from it. This is only true if it can be shown that the properties measured include all that are vital to paper machine operation. Perhaps 80 or 90 per cent of the time the laboratory results will be in acceptable agreement with the results of the finished paper; the rest of the time there is a decided lack of harmony. A series of batches of pulp which the laboratory tests indicate to be uniform may produce paper of great variation in strength, and again a series of batches considerably below laboratory standards have been run into paper of uniformly good strength. The argument that these variations in paper strength are due to methods of handling stock in the beater room and on the machines, is no doubt true in a good many cases but is not tenable when these variations occur almost simultaneously on two or more parallel machines. Further evidence of the inadequacy of at least some of the methods employed is actual practice can be seen in the failure of several laboratories each testing samples of several pulps, to obtain checking results or results which bear any systematic relation to each other. One laboratory indicated two pulps to be of about equal strength while another laboratory, testing the same two pulps, reported one 65 per cent stronger than the other. (See report of Sulphate Pulp Committee, February, 1928).

The above erratic results occurred in spite of the fact that in almost any laboratory they can produce results that check within plus or minus 5 per cent working on unknown samples of pulp, and many operators can check much more closely. This would indicate that the several pulps yield differently to different treatments, and may explain some of the discrepancies between results of pulp strength tests and the strength of paper made on the paper machine. Although these features point toward the insufficiency of the simple strength tests as a means of evaluating pulp, it is also probable that refining in a beater, ball mill or similar equipment must constitute a part of any method for measuring pulp quality, but that other tests must be added to produce understandable results. No doubt a tearing test added to the pop test, which is generally applied to the laboratory tests sheets, would materially add to the value of the beating test.

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* Presented at the Fall Meeting of TAPPI, Wausau, Wis., Sept. 27, 1928.
[1] Member TAPPI; Supt. of Soda Pulp Mill, Northwest Paper Co., Cloquet, Minn.

Paper Machine Requirements

The requirements of the paper machine must be kept in view in formulating any adequate method of determining the paper making properties of a pulp. A method of refining may produce a fibre of unusual strength but if its physical properties do not permit a machine to make paper from it, the method is without practical significance to that machine. Perhaps the most important of these physical properties is freeness, and it would seem illogical to expect to anticipate the behavior of pulp on a machine without some reference to this factor. Unfortunately freeness is affected by at least two actions of the refiners, cutting and hydration or wetting; and the available means of measuring freeness fail to distinguish between them, though it is quite possible that this is not necessary, and that freeness data combined with other information can suffice to indicate quality.

Chemical purity of a fibre is also sometimes used in its evaluation, the purity being variously determined by bleachability tests, lignin determinations, and other means. The connection between the purity of a pulp and its paper making properties is not obvious except in extreme cases; though that lignin content has a bearing on the life and other properties of paper, is generally taken for granted, and perhaps when more data are available, chemical tests may come to be of assistance in the physical tests in pulp quality estimations.

A method of evaluating the pulp making qualities of wood is given a ranking of less importance than the method of evaluating the pulp, principally because it is to some extent dependent on the latter. Though in most mills the cost of pulpwood represents roughly one-half of the total cost of the pulp, almost no recognition is given to differences in quality of the wood, except that usually there is some classification according to species of wood. This situation obtains in mills where other raw materials, such as lime, salt cake, etc., are accurately weighed and carefully watched for any drop below standard.

Evaluating Pulp Wood

The inadequacy of the cord measure as a basis for wood purchase has long been recognized and some movement has been made to devise a more rational basis for buying wood. Measurements have been made on wood actually presented for purchase in which the solid wood contained in the several cords varied all the way from 60 cu. ft. to 108 cu. ft. The amount of pulp which can be produced from a cord of wood is almost directly proportioned to the weight of dry wood in that cord and so the apparently logical way to measure pulp wood is by weight. The technical problem in this case is the development of a satisfactory and practicable method of determining moisture in pulp wood.

Differences in Fiber

Experience has indicated that spruce wood is the best source of paper making fiber, and that as a general thing, certain species are preferable to others. This situation, while important, soon loses interest for there are only a limited number of species available for pulp production, and there are only a few of these that any individual mill can expect to use profitably; the relative value of these can soon be established. What is not at all well understood is the difference in fibre obtainable from individual trees of the same species, or from groups of trees of the same species grown under different climatic and soil conditions. It is a general idea that the fibre from the slow growing trees of the far north is finer and more pliable, and hence better suited to paper making than the longer but coarser fibre from the south where conditions foster more rapid growth. But small scale tests have noted distinct differences in fibre quality in wood of the same species grown no more than ten miles apart. It is possible that a count of the number of annual growth rings per inch of tree diameter, or a determination of specific gravity may serve as an indication of the inherent pulp making qualities of the wood well enough for any control which could be applied in this case.

Effects of Decay

Decay is of much more immediate importance, in regard to its effect on both yield and quality of pulp. One of the effects of decay is to decrease the weight of the wood, which results in a decrease in the possible yield of pulp per cord by at least a corresponding percentage. It has been noted that certain types of fungus may decrease the weight of wood as much as 20 per cent and leave it in such condition that a visual inspection would indicate that the wood was entirely sound. Other types of decay attack the fiber in preference to the rest of the wood, and in such cases the loss in value is more serious. Generally a loss in yield due to decay is accompanied by a lowering in the quality of the pulp produced but data on this effect on quality are not conclusive, probably because our first problem, that of evaluation of pulp, has not been satisfactorily solved.

United States Patents on Papermaking

Issued During the Third Quarter, 1928

Compiled by Clarence J. West,
Chairman, Committee on Abstracts and Bibliography, TAPPI.

July 3, 1928.

1,675,363. Controlling means for calender doctors. Frederick W. Lodding, assignor to Rice, Barton and Fales, Inc., Worcester, Mass. (Cl. 92—74).

1,675,385. Beating engine. Leo Shlick, Boston, Mass. (Cl. 92—25).

1,675,540. Attachment for felt conditioners. Wm. Riley Fowler, Hamilton, Ohio. (Cl. 92—50).

1,675,612. Screen for paper making. Isaac Lauren Laird, assignor to Bird Machine Company, South Walpole, Mass. (Cl. 92—34).

1,675,613. Screen for paper making. Isaac Lauren Laird, assignor to Bird Machine Company, South Walpole, Mass. (Cl. 92—36).

1,675,666. Method of making fiber board. Wm. M. Shoemaker, Jr., assignor to National Vulcanized Fibre Company, Wilmington, Del. (Cl. 154—34).

1,675,667. Apparatus for making fiber board. Wm. M. Shoemaker, Jr., assignor to National Vulcanized Fibre Company, Wilmington, Del. (Cl. 154—34).

1,675,769. Protective paper and method of making the same. Burgess W. Smith, assignor to The Todd Company, Inc., Rochester, N. Y. (Cl. 283—8).

1,675,863. Unloading device for slitter and rewinding machines. Philip D. Parsons, assignor to Scott Paper Company, Philadelphia, Pa. (Cl. 242—55).

1,675,959. Manufacture of sheet material. Reed P. Rose, assignor to General Rubber Company, New York, N. Y. (Cl. 92—21).

1,676,048. Paper-pulp shredder. Frank B. Philbrick, assignor to Waterville Iron Works, Waterville, Me. (Cl. 92—20).

July 10, 1928.

1,676,286. Shirt envelope. Arthur Ratcliffe, assignor to Hummel and Downing Co., Milwaukee, Wis. (Cl. 229—87).

1,676,305. Paper making. Roy Victor Weldon, assignor to Great Northern Paper Company, Millinocket, Me. (Cl. 34—48). Method of guiding the paper web of a paper machine into the carrier ropes of the drying rolls.

1,676,351. Prepared roofing and method of making. Thomas Robinson, assignor to Lancaster Asphalt, Inc., New York City. (Cl. 154—2).

1,676,617. Fiber board for containers and the like. Donald G. Magill, assignor to American Can Company, New York, N. Y. (Cl. 91—68).

1,676,636. Soaking machine employed in making paper. Charles T. Crocker, Fitchburg, Mass. (Cl. 92—3).

1,676,652. Apparatus and process for cleaning paper stock. Charles L. Keller, assignor to The Richardson Company, Lockland, Ohio. (Cl. 92—28).

1,676,653. Method and means for paper stock refining. Harry Liebeck, assignor to Scott Paper Company. (Cl. 92—27).

1,676,655. Paper making machine. Wm. A. Lorenz, assignor to The Otaka Fabric Company, West Hartford, Conn. (Cl. 92—69). Paper crinkling machine.

1,676,691. Method of charging cellulose digesters and the like and means therefor. Per Albert Fresk, Robertsfors, Sweden. (Cl. 214—17).

1,676,727. Composite board. John D. Carter, Lansdowne, Pa. (Cl. 154—45.9).

1,676,759. Process and mechanism for producing stretchable paper. Howard G. Widmer, assignor

to Arkell Safety Bag Company, New York, N. Y. (Cl. 92—69).

1,676,798. Method of making articles from a fibrous composition. Wm. G. O'Brien, assignor to The Goodyear Tire and Rubber Company, Akron, Ohio. (Cl. 92—59).

1,677,040. Paper receptacle. Cornelius Henry McGiehan, Glens Falls, N. Y. (Cl. 229—21). Milk bottle of paper.

July 17, 1928

1,677,128. Oscillating suction box. Alonzo Aldrich, assignor to Beloit Iron Works, Beloit, Wis. (Cl. 92—51).

1,677,284. Sheet material and method of making and mounting the same. Tod J. Mell, assignor to The B. F. Goodrich Company, New York, N. Y. (Cl. 154—49).

1,677,386. Automatically-operating paper-box shaping and finishing machine. Irving A. Deline, Denver, Colo. (Cl. 93—55).

1,677,390. Machine for making covered boxes. Albert F. Jones, Salem, Mass. (Cl. 93—40).

1,677,599. Method and machine for the producing of tightly-coiled paper. Frederick Schade, Copenhagen, Denmark. (Cl. 242-55).

1,677,614. Process of making a size or dressing. Auguste Boidin, Seclin, France, and Jean Effront, Brussels, Belgium. (Cl. 127-35).

1,677,615. Prepared starch material and process of making it. Auguste Boidin, Seclin, France, and Jean Effront, Brussels, Belgium. (Cl. 127-35).

July 24, 1928.

1,677,905. Continuous process apparatus for forming articles from pulp. Orange J. Salisbury, Salt Lake City, Utah. (Cl. 92-43).

1,677,918. Shipping box for articles. Clarence P. Gallistel, assignor to Mid-West Box Company, Chicago, Ill. (Cl. 229-87).

1,677,930. Writing paper. Henry G. Prosser, assignor to Bermingham and Prosser Co., Kalamazoo, Mich. Cl. 283-45).

1,678,021. Modeled article and method of making same. George L. Preble, assignor to Preble Box Toe Co., Lynn, Mass. (Cl. 91-68).

1,678,083. Suction roll. Andrew N. Russell and Bernard A. Malkin, assignors to The Paper and Textile Machinery Company, Sandusky, Ohio. (Cl. 92-53).

1,678,109. Tension device for newspaper-roll stands. Charles A. Dresser and Edwin W. Hamner, assignors to Cline Electric Manufacturing Company, Chicago, Ill. (Cl. 242-75).

1,678,176. Removable-type fourdrinier paper-making machine. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wisconsin. (Cl. 92-44).

1,678,230. Process for the production of high-alpha cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. (Cl. 92-13).

1,678,387. Briquette and process for producing it. Robert Marion Hale, assignor to Minerals Separation North American Corporation, New York, N. Y. (Cl. 44-16). Use of sulphite waste liquor.

1,678,390. Method of working fibrous material. Wm. Fuller Hosford, assignor to Western Electric Company, Inc., New York, N. Y. (Cl. 92-55).

1,678,410. Machine for preparing paper to enable portions to be easily detached. Wm. Walter Warrington, Summer Hill, New South Wales, Australia. (Cl. 92-68).

July 31, 1928.

1,678,718. Method of washing cooked straw. De Witt C. Amerine, Vincennes, Ind. (Cl. 92-9).

1,678,720. Sizing fibers. Hubert L. Becher, assignor to The Agasote Millboard Company, Ewing Township, N. J. (Cl. 92-21).

1,678,759. Manufacture of hollow bodies from fibrous material pulp. Friedrich Wilhelm Baumgärtner, assignor to F. A. Baumgärtner, Dr. Katz and Co. G. m. b. H., Eiswerder-Spandau, Germany. Cl. 92-54).

1,678,959. Box. Frank J. Schleicher, St. Louis, Mo. (Cl. 229-4.5).

1,678,959. Edge-protected board. John Schumacher, Los Angeles, Calif. (Cl. 154-45.9).

1,678,978. Apparatus for reconditioning felts of peper-making machines. Mortimer F. Flynn, assignor to New Nap System, Inc., New York, N. Y. (Cl. 92-50).

1,679,034. Stencil sheet. Shinjiro Horii, Tokyo, Japan. (Cl. 41-38.6).

1,679,056. Beating engine. Leo Shlick, Montreal, Quebec, Canada. (Cl. 92-24).

1,679,057. Beating engine. Leo Shlick, Boston, Mass. (Cl. 92-24).

1,679,058. Beating engine. Leo Shlick, Boston, Mass. Cl. 92-24).

1,679,059. Beating engine. Leo Shlick, Boston, Mass. (Cl. 92-24).

1,679,336. Method and apparatus for continuous cooking of fibrous material. Thomas L. Dunbar, assignor to Chemipulp Process, Inc., Watertown, N. Y. (Cl. 92-7).

Aug. 7, 1928.

1,679,343. Mechanism for rolling paper and the like. Alonzo Aldrich, assignor to Beloit Iron Works, Beloit, Wis. (Cl. 242-64).

1,679,407. Means for lining carboard boxes. William Arthur Coyte, assignor to J. Lyons and Company, Limited, London, England. (Cl. 93-36).

1,679,441. Process of manufacturing pulp for paper production. Dinshaw Rattonji Nanji, Birchfields, Birmingham, England. (Cl. 92-13).

1,679,523. Paper-making machinery. Ralph E. Heisel, assignor to Paper Machinery Corporation, Dayton, Ohio. (Wire). (Cl. 92-44).

1,679,598. Suction roll. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. (Cl. 92-53).

1,679,682. Method of pulping wood. Francis G. Rawling, Knoxville, Tenn. (Cl. 92-9). Preliminary treatment with an aqueous solution of sodium sulphite and the sodium salt of a weakly ionized polybasic acid between 100 and 150°C.

1,679,710. Cardboard and like box or container. Benjamin Joseph Creasey, assignor to E. S. and and A. Robinson, Limited, Bristol, England. (Cl. 229-6).

1,697,711. Paper-calendering device. Arthur L. Dawe, Montreal, Quebec, Canada. (Cl. 92-71).

1,697,721. Reenforced paper fabric. Charles H. Howard, assignor to American Re-enforced Paper Company, Attleboro, Mass. (Cl. 154-52).

1,679,854. Paper-making machine. James K. Darby, assignor to Frank C. Trowbridge, Hamilton, Ohio. (Cl. 92-44). A transverse movable forming table.

1,679,947. Wall board. Harold C. Sanborn, Chicago, Ill. (Cl. 72-16).

1,679,985. Paper-folding machinery. John Mentges, assignor to the Mentges Folder Company, Sidney, Ohio. (Cl. 271-86).

1,679,996. Filigree-design process. Peter J. Tracey, assignor to The Otaka Fabric Company, Hartford, Conn. (Cl. 92-69).

1,680,203. Crepe and method of and apparatus for making the same. William H. Cannard, Green Bay, Wis. (Cl. 92-69).

Aug. 14, 1928.

1,680,277. Paper-making machine. Arthur Bellemare, Three Rivers, Quebec, Canada. (Cl. 34-48). Rotary dryer roll.

1,680,310. Static collector for printing presses. Charles Wehrle, Remer, Minn. (Cl. 175-264).

1,680,486. Suction box. Robert H. Taylor, assignor to Rice, Barton and Fales, Inc., Worcester, Mass. (Cl. 92-51).

1,680,540. Method of treating and utilizing the black liquor obtained in the manufacture of soda and sulphate cellulose. Erik Hägglund, Abo, Finland. (Cl. 23-46).

1,680,711. Art of striping paper. Edward B. Weston and William G. Clark, assignor to The Western Paper and Mfg. Co., Dayton, Ohio. (Cl. 91-38).

1,680,797. Paper-crinkling apparatus. William A. Lorenz, assignor to the Otaka Fabric Company, Hartford, Conn. (Cl. 92-69).

1,680,892. Pulp suction die. James Fleming Low, Toronto, Ontario, Canada. (Cl. 92-57).

1,680,893. Vacuum-control mechanism for pulp-molding machines and the like. James Fleming Low, Toronto, Ontario, Canada. (Cl. 92-57).

1,680,896. Manufacture of fiber board. Robert A. Marr, Norfolk, Va. (Cl. 92-61).

1,680,912. Apparatus for making pulp or the like. Homer D. Martindale, Middletown, Ohio. (Cl. 92-24) Beater.

1,680,946. Envelope. Loeser Kalina, Brooklyn, N. Y. (Cl. 229-85).

1,680,949. Deinking paper. Alan R. Lukens, assignor to The Richardson Company, Cincinnati, Ohio. (Cl. 92-13).

1,681,046. Paper-rolling machine. William Franklin Marresford, Niagara Falls, N. Y. (Cl. 242-55).

1,681,145. Method of and apparatus for handling and drying pulp tubes or the like. Howard Parker, assignor to Brown Company, Portland, Me. (Cl. 34-12).

1,681,212. Process of making paper boxes and the like. Samuel Bergstein, assignor to The Interstate Folding Box Company, Middletown, Ohio. (Cl. 93-49).

1,681,223. Method of producing fibrous thread. Joaquin Julio de la Roza, assignor to Bagasse Products Corporation, New York N. Y. Cl. 92--5).

1,681,350. Method and machine for gloss coating paper. Elie W. Labombarde, Nashua, N. H. (Cl. 91-51).

Aug. 21, 1928.

1,681,935. Jordan engine. Herman R. Harriganm assignor to E. D. Jones and Sons Co., Pittsfield, Mass. (Cl. 92-27).

1,681,992. Machine for applying paste to paper sheets. Samuel Lovenwirth, Philadelphia, Pa. (Cl. 91-51).

1,682,099. Centrifugal sorting apparatus. Friedrich Soyez, assignor to Zellstoffabrik Waldhof, Mannheim-Waldhof, Germany. (Cl. 92-35).

1,682,346. Paper fabric. William A. Lorenz, assignor to The Otaka Fabric Company, Hartford, Conn. (Cl. 92-39).

1.682,460. Mechanism for uniformly interweaving fibers. Alonzo Aldrich, Beloit, Wis. (Cl. 92-44). (Fourdrinier machine).

1,682,496. Felt washer. William P. Feeney, Cheboygan, Mich. (Cl. 92-50).

1,682,511. Apparatus for crushing material. Anton J. Haug, Nashua, N. H. (Cl. 92-26).

1,682,522. Doctor bar. Claude Ives, Otsego, Mich. (Cl. 92-74).

1,682,639. Blasting paper. G. Farris Templeman, Lexington, Ky. (Cl. 102-6).

Sept. 4, 1928.

1,682,826. Method of and apparatus for making multiplex paper. George L. Bidwell, assignor to The Warren Manufacturing Company, Riegelsville, N. J. (Cl. 92-39).

1,682,834. Method of manufacturing straw pulp and paper. Charles H. Dedrick, assignor to Philadelphia Quartz Company, Philadelphia, Pa. (Cl. 92-9).

1,682,977. Paper receptacle or container and art of making the same. Fred T. Nicholson, Bloomfield, N. J. (Cl. 229-5.5).

1,682,980. Machine for planing suction boxes. Harry M. Ostertag, assignor to Paper Patents Company, Neenah, Wis. (Cl. 144-288).

1,683,262. Process of chemically treating and washing pulp. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. (Cl. 92-16).

1,683,374. Driving mechanism for paper and other machines. John White, Edinburgh, Scotland. (Cl. 64-8). Expansion pulley.

1,683,453. Coated paper. Frederick W. Farrell, assignor to McLaurin-Jones Co., Brookfield, Mass. (Cl. 91-68).

1,683,470. Process for the production of waterproof textile material, paper and the like. Carl Knopf, Hamburg, Germany. (Cl. 8-20).

1,683,546. Beating engine. John D. Haskell, assignor to Dilts Machine Works Incorporated, Fulton, N. Y. (Cl. 92-24),

Sept. 11, 1928.

1,683,597. Pulp beater. Lorenzo M. Avenson, St. Paul, Minn. (Cl. 92-24).

1,683,605. Button board and process of manufacture. Albert L. Clapp, assignor to Beckwith Manufacturing Company, Boston, Mass. (Cl. 92-21).

1,683,623. Abrasive paper or cloth. Ralph B. Manley, assignor to The Carborundum Company, Niagara Falls, N. Y. (Cl. 51-279).

1,683,628. Recovery of waste gases in the production of sulphite pulp. George A. Richter, assignor to Brown Company, Berlin, N. H. (Cl. 92-2).

1,683,632. Paper bag. Joseph W. Taggart, assignor to Taggart Brothers Company, Watertown, N. Y. (Cl. 150-9).

1,683,782. Method and apparatus for washing pulp. Charles A. Johnson, assignor to Brown Company, Berlin, N. H. (Cl. 141-12).

1,684,105. Envelope. Oscar J. Olm, assignor to Northwestern Paper Goods Company, St. Paul, Minn. (Cl. 229-72).

Sept. 18, 1928.

1,684,411. Wood-chipping machine. John Rae, Ocean Falls, British Columbia, Canada. (Cl. 83-75).

1,684,494. Apparatus for making bisulphite liquor. Jacob Darre Jenssen, assignor to G. D. Jenssen Company, New York, N. Y. (Cl. 23-260).

1,684,521. Roll for beating engines. Herbert R. Simonds, assignor to The A. A. Simonds-Dayton Company, Dayton, Ohio. (Cl. 92-22).

1,684,615. Vacuum pipe connection for cylinder machines. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. (Cl. 92-43).

1,684,725. Method of constructing shipping containers. Paul F. Boeye, assignor to Waldorf Paper Products Company, St. Paul, Minn. (Cl. 93-42).

1,684,755. Synthetic resin fiber board. Albert L. Clapp, Danvers, Mass. (Cl. 92-21).

Sept. 25, 1928.

1,685,084. Apparatus for separating liquid from pulp fibers. John H. Hoyt, assignor to United Filters Corporation, New York, N. Y. (Cl. 92-36).

1,685,085. Dewatering apparatus. John T. Hoyt, assignor to United Filters Corporation, New York, N. Y.

1,685,117. Paper-unwinding stand with water cooled drum. Earl Elwin Berry, assignor to Beloit Iron Works, Beloit, Wis. (Cl. 242-55).

1,685,138. Paper container. James G. Norton, Leonia, N. J. (Cl. 229-1.5).

1,685,320. Insulating board. Doxier Finley, assignor to The Paraffine Companies, Inc., San Francisco, Calif. (Cl. 154-45).

1,685,427. Machine and process for drying crinkled paper. William A. Lorenz, assignor to The Otaka Fabric Company, Hartford, Conn. (Cl. 34-48).

1,685,736. Machine for papermaking processes. Harold D. Wells, Glenn Falls, N. Y. (Cl. 92-36).

1,685,754. Method of recovering sulphur dioxide from waste gases. George A. Richter, assignor to Brown Company, Berlin, N. H. (Cl. 23-178).

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Cellulose

Chemistry and Technology of Cellulose. R. E. Montonna. Paper Trade J. 86, No. 18, 61-67 (May 3, 1928); Tech. Assoc. Papers XI, 84-90 (June, 1928). A brief review of the more important publications covering the whole field, with about 500 references selected on the basis of their importance and of their probable availability.—A. P.-C.

Recent Work on the Oxidation of Cellulose: A Review Covering Two Years. J. L. Parsons. Ind. Eng. Chem. 20, 491-495 (May, 1928). In agreement with Cross and Doree, a review of the literature on cellulose degradation products leads to the critical and inevitable conclusion that there are no lines of demarcation or differentiation justifying the term "oxycellulose" as applied to a chemical individual. To prevent ambiguity the term "oxidized cellulose" is much to be preferred to denote such a mixture of reactions which evidently are involved in the oxidation of cellulose. —A. P.-C.

Chemistry of Wood Cellulose. IV. Isolation, Analysis and Chemical Properties of Cellulose From Red Spruce (*Picea Rubens*. E. C. Jahn and L. E. Wise. Paper Ind. 10, 244-252 (May, 1928). The isolation of crude cellulose from red spruce (*Picea rubens*) was effected by five different methods. The most homogeneous preparation was apparently that obtained by bleaching sulphite pulp. The purest and most homogeneous alpha cellulose preparation was that obtained from Cross and Bevan cellulose. The methods of isolating "crude" and "alpha" cellulose were studied and described in detail. The source of the wood used was known and the material was chemically analyzed. The analyses of the various cellulose preparations included the determination of alpha, beta and gamma cellulose, pentosans, residual lignin, and, in a number of cases, carbon and hydrogen. The latter had relatively little value in judging the homogeneity of cellulose preparations. D'Ans and Jager's statement that cellulose is most soluble at 23 degrees C. in 12 per cent caustic soda was not substantiated. The removal of pentosans from cellulose by alkali treatment was shown to increase with increasing strength of alkali. Upon retreatment with alkali the pentosan content of the cellulose reached an irreducible minimum. It was impossible to obtain any alpha cellulose preparation in such a form that it remained completely insoluble in caustic soda on retreatment with alkali. This confirms the findings of Tauss (J. Soc. Chem. Ind. 9, 883 (1890)). Studies were made to determine the best methods of drying alpha cellulose preparations. Drying at 100 to 105 degrees C. was ordinarily satisfactory. Air dried material could be completely dehydrated at 78 degrees C. in vacuo over phosphoric anhydride. At lower temperatures, however, the cellulose absorbs moisture in such an evacuated system.—A. P.-C.

Recent Advances in Cellulose and Starch Chemistry. H. LeB. Gray and C. J. Staud. Chem. Reviews 4, 355-373 (1927). A review of material published in 1926, with a brief survey of earlier work on cellulose structure. Most of the 104 references given are to papers appearing in 1926.—A. P.-C.

Preliminary Investigations on the Constitution of the Hemicellulose of Timber. M. H. O'Dwyer. Biochem. J. 22, 3810390 (1928). Eighty per cent of hemicellulose A (obtained from beechwood 80 years old by treating in the cold with 4 per cent caustic soda, after the removal of the water soluble constituents, the pectic substances and the protein) could be acetylated, but only 20 per cent of the same substance from an older beech and from oak heartwood yielded to acetylation. The hemicelluloses contain a certain percentage of methoxyl of which about half exists in the form of an ester. Methylating the residue obtained after acetylating the oak revealed a rise in the methoxyl content.—A. P.-C.

General Study of the Chemistry of Cellulose and Its Principal Derivatives. H. Gault and P. Ehrmann. Caoutchouc Et Gutta-Percha 24, 13,748-13,749, 13,824-13,826 (1927); 25, 13,868 (1928). A review of the various types of mixed cellulose esters and their methods of preparation, with new experimental data. Theoretically it should be possible to prepare mixed esters by nitrating or acetylating simple cellulose esters of fatty acids, but experiments showed that the reaction is slow; the nitro derivatives were prepared by heating for half to one hour at 45 to 50 degrees C. a solution of dinitrocellulose in pyridine with the fatty acid chloride dissolved in toluene and precipitating with excess of alcohol. Toluene can be replaced partly or wholly by carbon tetrachloride which has a catalytic action. There were thus prepared dinitrolaurocellulose and dinitropalmitocellulose, both fibrous, much less inflammable than the nitrocellulose from which they were prepared, and soluble in chloroform, carbon tetrachloride and pyridine, wholly insoluble in alcohol, alcohol-ether, ether, acetone and acetic acid, soluble with great difficulty in concentrated sulphuric acid, and in general more resistant to chemical reagents than nitrocellulose. Similarly, by heating for one hour at 70 to 80 degrees C., diacetocellulose dissolved in a mixture of carbon tetrachloride and pyridine with lauryl chloride, precipitating with alcohol, and purifying from benzene, there was obtained diacetolaurocellulose in 91 per cent yield; and by heating at 100 degrees C. for one hour a solution of diacetocellulose in a mixture of carbon tetrachloride and pyridine with palmityl chloride, there was obtained diacetopalmitocellulose in 84.2 per cent yield. Both these substances are fibrous and have properties similar to those of the corresponding dinitro derivatives. The introduction of a fatty acid residue in dinitrocellulose and in diacetocellulose reduces the inflammability, renders them soluble in organic solvents and increases the resistance to hydrolyzing agents. The general results of the completed series of experiments are discussed.—A. P.-C.

Lignin

Study of Our Knowledge of the Chemistry of Lignin. G. Dupont. Chimie Et Indus. 19, 3-23 (Jan.), 407-16 (March 1928) A review of the chemistry and technology of lignin.—A.P.-C.

Chemistry of Lignin Bodies. Karl Kurschner. Paper Trade J. 86, No. 16, 62-71 (Apr. 19, 1928); Tech. Assoc. Papers XI, No. 1, 100-109 (June 1928). A critical review of bibliography. –A.P.-C.

Chemistry of Lignin. II. Fractional Extraction of Lignin from Corn Cobs. Max Phillips. J. Am. Chem. Soc. 50, 1986-1989 (July 1928). Lignin was fractionally extracted from corn cobs by a 2 per cent alcoholic sodium hydroxide solution at room temperature, by 2 per cent aqueous sodium hydroxide at 100 degrees and at 135 degrees, and finally by 4 per cent aqueous sodium hydroxide at 180 degrees. Each method of extraction was continued until no further lignin was obtained, before the next method in the series was used. The results justify the conclusion that the lignin in corn cobs is unequally combined with the carbohydrates, part of it being loosely bound, possibly in the form of an ester, and the remainder being more firmly held, probably in the form of an ether-like combination.—C.J.W.

Pulping Flax Straw

V.—Production of Pulp by the Chlorine Process

By Earl R. Schafer [1] and Clifford E. Peterson [2]

Papers II and IV of this series [3] have dealt with the chlorination of flax straw in comparative small quantities for the purpose of observing some of the fundamental factors in the process. The present paper is a report of the continuation of that work on a semi-commercial basis for the purpose of determining the general character of chlorine flax pulps and their probable applications. Several products were made by varying the pulping conditions and the methods of processing, principally with the object of developing clean pulps having both good color and strength qualities suitable for the better grades of paper. While the attainment of this objective was not entirely successful, certain indications and facts that are worthy of consideration were disclosed.

Chlorine Processes

Chlorine has been used in the laboratory for many years in the isolation of cellulose from plant materials. It is only in the last year or two, however, that manufacturing processes in which it is used have been developed. The development of these new processes, which has occurred entirely in Europe, is confined thus far to such materials as straws, grasses, and wastes from the textile industries.[4]

Two processes are reported in commercial use; one employs chlorine as a gas, while the other employs it as a water solution. The gaseous process has been developed principally in Italy, and the chlorine-water process in France. The reactions taking place are, in principle, the same in both processes, the difference being only in the method of operation. Both processes involve also the use of caustic soda; consequently their development may be attributed in part to the promotion of new uses for electrolytic caustic soda and chlorine. Aside from the other factors involved, such for instance, as the quality of the pulp, the success of the processes depends upon cheap electrical power, a scarcity of wood supply, and an abundance of straw, grass, or other fibrous plants.

Raw Material

The straw used in these experiments was from flax of the variety grown for linseed *(Linum usitatissimum)*. It had been threshed and was shipped in bales to the Laboratory. Preliminary to the pulping operations the straw was cut in a rag cutter. The entire contents of the bale as received were used. The material pulped consisted, therefore, in addition to the components of the flax stem (bast fibers and woody shives) of a considerable amount of chaff, composed principally of leaves and seed pods, of some grass and weeds, and of a few twigs. The extraneous material amounted to some 30 per cent of the straw as received.

Method of Pulping and Results

The sequence of operations employed in the pulping was: (1) Predigestion, (2) mechanical processing or refining, (3) chlorine treatment, and (4) refining of the pulp for the paper machine. A description of these operations follows:

Predigestion

The predigestion was accomplished in a horizontal cylindrical steel digester, of the rag boiler type, of 325 gallons total capacity. A maximum charge of material in this digester is about 500 pounds of wood chips or 300 pounds of cut straw (air-dry basis). The digester rotates about once a minute. The charge is heated directly by means of steam introduced through one of the trunnions. At the end of the digestion the pressure is relieved and the contents are cooled, by the admission of cold water, sufficiently to permit the removal of the manhole cover. The contents are then emptied into a shallow drainer tank provided with a perforated tile bottom, where the pulp is drained and washed.

The conditions held constant, within practical limits, for all digestions were the ratio of the volume of solution to the weight of material cooked, the curve followed during the period of rising temperature, and the maximum temperature. As in the work previously reported [5-6] these conditions were, respectively, 60 gallons of solution per 100 pounds of material (oven-dry basis); one-half hour for the increase from the initial temperature to 100° C., followed by 1½ hours for the further increase to the maximum temperature, each on a straight-line rise; and a maximum temperature of 155° C., which was held unchanged for the predetermined time. The variable conditions were the kind of chemicals, the successive ratios of their weight to the weight of the material, their concentrations, and the duration of the cooking at the maximum temperature.

Each of the several conditions of alkaline pulping that were employed in the semicommercial tests now reported had a counterpart in a small-scale digestion.[5] The semicommercial yield of pulp was determined in nearly every case, but for the other properties, such as lignin content and chlorine requirements, the results obtained in the small digestions were used. A partial comparison of some semi-commercial and the corresponding small scale experiments was published in the third paper.[7]

The chemicals used in the alkaline digestions were caustic soda, caustic soda and sodium sulphide, sodium sulphite, and sodium sulphite and caustic soda. The ratio of chemical to straw was varied from 10 per cent (total available alkali in the solution calculated as caustic soda on the basis of oven-dry straw) to 20 per cent. The quality variations in the pulps obtained has furnish, by virtue of their behavior in the subsequent operations, a fairly good view of the practical value of the chlorine process. The properties of the pulps are discussed later in more detail.

Mechanical Processing or Refining

It may seem incongruous that a refining operation should be in-

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[2] Formerly Junior Chemist in Forest Products, U. S. Forest Products Laboratory, Madison, Wis.

[3] Other papers from the U. S. Forest Products Laboratory on flax straw are:

A Study of Flax Straw for Paper Making. John D. Rue, Sidney D. Wells and Earl R. Schafer. Paper Trade J. 79, 13, 45 (1921); Pulp and Paper Mag. of Canada, 22, 42, 1068 (1924), and 22, 43, 1087 (1924).

Chemical Constituents of Flax Straw. Sidney D. Wells and Earl R. Schafer. Paper Trade J. 80, 17, 47 (1925); Paper Ind. 7, 2, 239 (1925).

Pulping Flax Straw. I.—Hydrolysis with Sodium Sulphite. Mark W. Bray and Clifford E. Peterson. Ind. Eng. Chem. 19, 3, 371 (1927); Paper Trade J. 84, 23, 317 (1927); Tech. Assoc. Papers, Series X, 1, 55 (1927).

Pulping Flax Straw. II.—Chemical Studies with Chlorine as a Pulping Agent. Earl R. Schafer, Mark W. Bray, Clifford E. Peterson. Paper Trade J. 84, 8, 207 (1927); Pulp and Paper Mag. of Canada 25, 7, 209 (1927); Tech. Assoc. Papers, Series X, 1, 58 (1927).

Pulping Flax Straw. III.—Hydrolysis and Delignification with Sodium Hydroxide and with a Mixture of Sodium Hydroxide and Sodium Sulphide. Mark W. Bray and Clifford E. Peterson. Paper Trade J. 86, 3, 48 (1928); Pulp and Paper Mag. of Canada 26, 2, 37 (1928); Tech. Assoc. Papers, Series XI, 1, 113 (1928).

Pulping Flax Straw. IV.—Further Studies on Hydrolysis and Delignification with Alkaline Reagents. Earl R. Schafer and Clifford E. Peterson. Paper Trade J. 86, 3, 51 (1928); Pulp and Paper Mag. of Canada 26, 15, 477 (1928); Tech. Assoc. Papers, Series XI, 1, 116 (1928).

Pulping Flax Straw. VI.—Properties of Flax Straw Cellulose and Its Value in the Cellulose Industries. Earl R. Schafer and Mark W. Bray. Presented at the meeting of the Division of Cellulose Chemistry of the American Chemical Society at Swampscott, Mass., Sept. 10-14, 1928.

Pulping Flax Straw. VII.—Strawboard and Insulating Board. Earl R. Schafer and Clifford E. Peterson. To be published.

[4] Commercial Manufacture of Pulp by the Chlorine Gas Process. Umberto Pomilio. Pulp and Paper Mag. of Canada 22, 944 (1924).

Continuous Chlorination by Means of Nascent Chlorine. A. R. DeVains and Raymond Fournier. Pulp and Paper Mag. of Canada 22, 757 (1924).

Criticisms of the DeVains Process. James Strachan. Paper Mill and Wood Pulp News 48, 33, 40 (1924).

Many other references to articles and abstracts of patents on the chlorine processes are listed in the bibliographies on paper making, published in Technical Association Papers 1923-1928, incl.

[5] Pulping Flax Straw, II, op. cit.

[6] Pulping Flax Straw, IV, op. cit.

[7] Pulping Flax Straw, III, op. cit.

TABLE 1—PULPING FLAX STRAW BY THE CHLORINE PROCESS[11]

Digesting						Rod milling					Chlorination				
Digestion No.	Chemical charged[2]					Rods									Remarks
	Kind	Amount per 100 lbs. straw	Total alkali per 100 lbs. straw[4]	Duration of cooking[5]	Total alkali consumed per 100 lbs. straw	Yield of crude pulp per 100 lbs. straw	Run No.[1]	Consistence	Kind	Per lb. of pulp	Rate of milling	Run No.[1]	No. of chlorinations	Total chlorine consumed per 100 lbs. crude pulp	Alkaline boiling treatment	Bleaching powder consumed per 100 lbs. crude pulp[6]	Yield per 100 lbs. straw	
		Lbs.	Lbs.	Hours	Lbs.	Lbs.		Per cent		Lbs.	Lbs. per hour			Lbs.	Chemical used	Lbs.	Per cent	
B205-1	NaOH	15.0	15.0	9	14.2	52.8	1 and 2	9.3	Steel	133	48	(1	2	21.8	$NaSO_3$	16.1)	43.5	
							5					(2	2	18.7	do	16.1)		
B205-2	NaOH	15.1	15.1	9	13.5	52.4	1 and 2	3.0	Bronze	349	18	1	2	29.4	NaOH	1.5	...	
							5	9.0	do	179	19	2	2	24.9	do	5.0	...	
B208-1	(NaOH	13.4	15.1	9	14.6	49.3	4	9.0	do	133	32	3	2	22.5	do	2.0	32.5	
	(NaS	3.3					2	9.0	do	127	23	1	2	17.6	do	4.0	...	
B208-2	(NaOH	13.4	15.1	9	...	48.8	1	6.5	do	127	22	2	2	15.1	do	11.0	...	
	(NaS	3.3					2	9.0	do	127	19)	(1	2	15.6	do	5.0	...	Sodium bicarbonate added during chlorination treatments.
										117	21)	(2	2	15.1	do	2.0	...	
B214-1	(NaOH	17.4	19.6	3	16.8	54.2	1	9.5	Steel	128	23)	(1	2	12.2	do)	5.0	44.0	Treated with hydrochloric acid and washed before bleaching.
	(NaS	4.3					2	9.5	do	130	19)	(2	1	12.3	do)			
B214-2	(NaOH	17.4	19.6	3	17.3	50.4	1	9.0	Bronze	130	16	1 and 2	1	11.1	do	10.0	...	
	(NaS	4.3					2	5.2	do	223	9		2	11.4	do	10.0	35.3	
							3	5.5	do	213	10	4	1	10.8	do)			
							4	5.9	do	199	12	5	1	11.2	do)	7.5	...	Pulp not chlorinated; bleached only.
							5	7.0	do	206	15	6	1	11.7	do)			
B214-3	(NaOH	17.4	19.6	3	13.5	47.6	1	9.0	do	130	13	1 and 2	1	10.4	do	6.0	...	Beater run No. 1, Digestion 214-3.
	(NaS	4.3						3.3	..		3			12.3	do	8.0	...	
B217-1	(NaOH	17.4	19.6	7	16.5	42.6	1	9.0	Bronze	130	28	1 and 2	1	7.5	do	5.0	...	Pulp not chlorinated; bleached only.
	(NaS	4.3					2	6.0	do	199	36)					32.0	...	
							3	6.0	do	167	26)	3 and 4	1	16.0	$NaSO_3$	3.0	...	No alkaline boiling treatment.
B221-1	(NaOH	8.8	9.9	4	...	70.0	1	14.3	do	82	15			21.4	NaOH	11.0	...	
	(NaS	2.2					2	13.0	do	82	18	1 and 2	2	18.9)	$NaSO_3$	5.5	...	Beater run No.1, Digestion 222-1.
B222-1	$NaSO_3$	20.0	...	8	...	62.0	1	6.0	do	208	31	1	1	16.6)	NaOH	9.0	...	No alkaline boiling treatment.
							2	6.0	do	208	31	2	1	16.0	do	12.0	...	
							3	4.0	..	..	6	3 and 4	1	17.4)	.....			
							3	13.0	Bronze	82	15	5	1	15.8(	.....			
												6	1	16.2)	(NaOH	12.0	...	
							4	9.0	do	130	27	7	1	8.1	do	22.0	...	
B224-1	(NaOH	10.0	...	8	...	53.4	...	...	..	...	...	8	1	14.5	do	18.0	...	Beater run No. 1, Digestion 224-1.
	($NaSO_3$	20.0					1	8.0	Bronze	200	29	1 and 2	1	19.0	do	8.5	...	
							2	6.0	do	206	22	3 and 4	1	23.5	do	6.0	...	
							3	9.0	do	130	19	5	1	18.1	do	8.5	...	

[1] The straw without preliminary dusting was cut before pulping by means of a rag cutter.

[2] All weights are on the basis of oven-dry material.

[3] The volume of cooking liquor was in the ratio of 60 gallons to 100 pounds of straw (oven-dry basis).

[4] The total available alkali was calculated by adding to the amount of sodium hydroxide charged or found by analysis 0.513 of the sodium sulphite determined similarly.

[5] The period of rising temperature was 0.5 hour from the initial temperature to 100 degrees C. and 1.5 hour for the additional increase to 155 degrees C., at which point the temperature was held constant for the predetermined time.

[6] Bleaching powder containing 35 per cent available chlorine.

[7] Where numbers are grouped (that is, 1 and 2), the runs indicated were duplicates within the practical limits of operation.

troduced at this point, since such work is usually done at the end of the pulping and bleaching operations. Numerous small laboratory tests,[8] however, have shown that flax pulp, after the chlorine treatment, is hydrated very rapidly in the beater. Microscopical examination showed the majority of the fibers to be broken down to small particles instead of being frayed or bruised as well-beaten linen fiber is. These effects are mentioned later under the heading "Refining of the chlorinated pulp."

Several beating tests were made in an Appleton type beater of about 20 pounds capacity, which was equipped with bronze bars and bed plate. Most of the refining, however, was done in an experimental rod mill[9] 3 feet in diameter, 5 feet long, and lined with plates heavily coated with rubber. The charges of rods, which varied from 3600 to 3800 pounds in weight, were either bronze or steel. Although in practice it is usual to operate the rod mill continuously, it is most advantageous for experimental purposes to operate it batchwise. All tests were therefore made in this manner. At the end of a run the pulp was washed out and dewatered on a wet machine to about 70 per cent moisture content.

As indicated in Table 1, only four rod mill runs were made with the steel rods. Iron from these rods was introduced into the pulp during the milling process; in spite of the subsequent chlorination and bleaching operations this iron prevented the obtaining of a white pulp. Bronze, introduced by the bronze rods, was dissolved in the chlorine treatment, and consequently did not stain the pulp. The lining of the rod mill gave some trouble because of the cutting off of minute particles of rubber by the rough end of the bronze rods. These troubles, of course, can be eliminated in practice.

In an extensive study of the use of the rod mill in the production of strawboard from flax straw,[10] the best results were obtained with 7 to 10 per cent consistence. With this information at hand, the majority of the tests under dis-

[8] Unpublished data.

[9] Rue, J. D., and Wells, S. D. The Rod Mill in the Pulp and Paper Industry. Paper Trade J. 83, 12, 53 (1926); Paper Mill and Wood Pulp News 49, 38, 14 (1926); Pulp and Paper Mag. of Canada 24, 40, 1192 (1926).

[10] Pulping Flax Straw, VII, op. cit.

cussion were made at 9 or 9.5 per cent and a few at 3, 5, 6 and 13 per cent consistence. The ratio of the weight of rods to the weight of pulp (oven-dry basis) not only affected the rate of milling but also had some effect on the half stuff quality. The rate of milling varied with the kind of pulp as well as with the weight ratio of rods to pulp. The most uniform milling and, in general, pulps most suited to the subsequent operations were obtained at about 9 per cent consistence, a rod-pulp weight ratio of about 130 to 1, and an average rate of milling of about 20 pounds of pulp (oven-dry basis) per hour.

The power required to operate the rod mill was about 12 horsepower. The ratio between the production of the Laboratory mill, run batchwise, and a commercial size mill (16 feet by 12 feet) operated continuously when milling wood pulps has been observed to be about 1 to 10, and the ratio of the power requirements about 1 to 7.5.[9] On this basis the production of flax pulp in a commercial size mill under the conditions stated would be 24 tons per 24 hours and the energy consumption would be 35 to 40 horsepower days per ton.

The quality of the pulp, for all practical purposes, was the same whether the rod mill or the beater was used. The former was more efficient in regard to energy consumption and stuff production but the latter gave the cleaner pulp.

Chlorine Treatment

The chlorination of the pulps was accomplished by means of a solution of chlorine in water. This solution was prepared in a Wallace and Tiernan chlorine control apparatus, type M.D.A., which was capable of delivering a solution of any desired strength up to an almost saturated one. Concentrations of chlorine from 0.25 to 0.30 per cent were found most convenient to use; these could be obtained with an average efficiency of 90 per cent absorption of gas. Any desired rate of flow from 80 to 120 gallons per hour could be obtained. The chlorine solution was conducted to the treating tank through a rubber hose provided with the control apparatus.

The chlorination tank (see fig. 1), which is constructed of 3-inch tank-grade cypress, is 3 feet 6 inches by 2 feet in inside dimensions. It is mounted horizontally, and is rotated about once a minute. Four of the staves, much thicker than the others, extend several inches into the tank as baffles to aid in agitating the stock. The charging opening for pulp (used also for discharging at the end of the treatment) is a 12½-inch by 9¼-inch oval cut in the staves. The lid is a block of cypress of the same shape provided with a flange of maple, which presses against the inside of the tank with a rubber hose for a gasket. All bolt heads inside of the tank are countersunk and the holes are filled with cypress plugs.

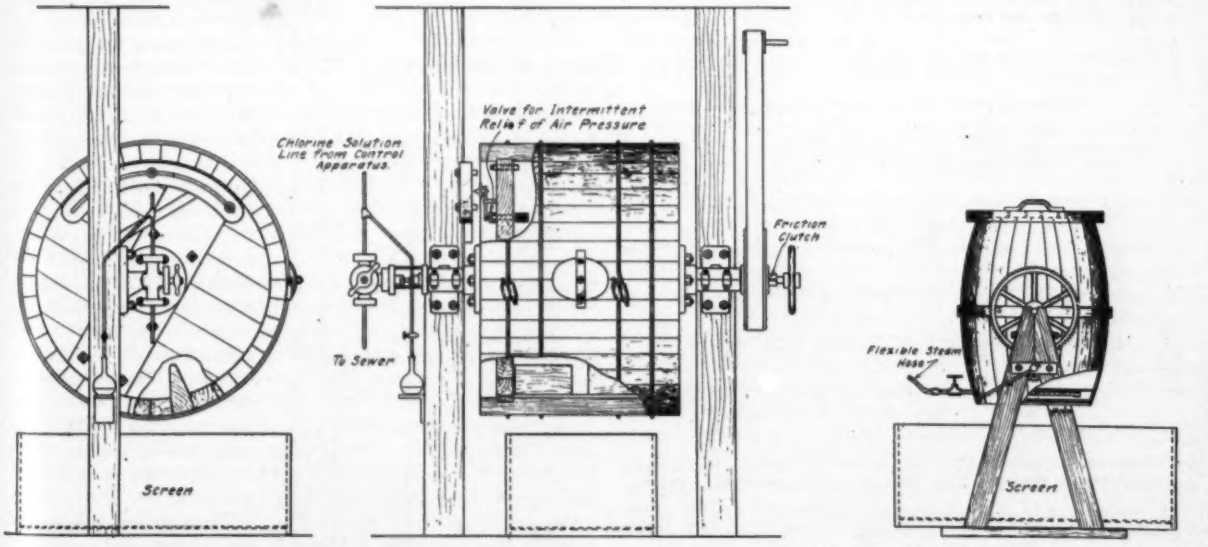
The chlorine solution is admitted to the chlorination tank through its hollow trunnion by means of a silver tube ½ inch in diameter. The silver tube turns with the trunnion in a bronze packing gland to which is attached a three-way stone ware valve with a lubricated plug. A rubber hose connection to the valve permits the flow of chlorine solution to be diverted, if desired, to the sewer.

In order to obtain uniform distribution of pulp and chlorine water and to prevent overchlorination, it is necessary to rotate the chlorination tank while charging it with chlorine water. Since, under these conditions, a continuous relief of the air pressure within the tank is practically impossible, the pressure is relieved intermittently by means of a hard-rubber valve located in one end of the tank. The valve is opened and closed once during each rotation by trips placed suitably. A hard-rubber tube fixed in the same end of the tank and closed with a rubber stopper is used at intervals for determining the height of the pulp-chlorine water mixture in the tank and for obtaining small samples of pulp.

An average sample of the chlorine solution can be taken during the charging period by means of a glass side tube in the soluton line, which is provided with a glass stopcock to regulate the flow. The chlorine sample is allowed to run into a known volume of sodium bicarbonate solution in a volumetric flask at such a rate that the combined solutions will have filled the flask to the mark at the end of the charging period. Part of the sample is analyzed for the content of available chlorine.

After the chlorine solution is charged the tank is allowed to continue rotating until the chlorine is almost or perhaps entirely consumed. This point in the process, which is determined by a starch-iodide indcator, varies in time from 12 to 16 hours from the start. At the end of the treatment the contents are emptied into a screen box provided with a Fourdrinier wire bottom where the pulp is drained.

The alkaline boiling treatment, which customarily follows the chlorine treatment, was carried out in a 50-gallon oak barrel (see Fig. 1). This barrel is mounted in a frame to facilitate the



Apparatus for the Treatment of Pulp with Chlorine Water

Apparatus for Boiling Chlorinated Pulp in Alkaline Solutions

Fig. 1

Apparatus for the treatment of pulp with chlorine water and apparatus for boiling chlorinated pulp in alkaline solution.

TABLE 2—SUMMARY OF THE PROCESSING AND THE CHARACTERISTICS OF PAPER FROM FLAX STRAW PULP PREPARED BY THE CHLORINE PROCESS

Digesting [1]		Rod Milling [1]			Chlorination [1]		Refining and Paper Making				Form [4]	Strength [4]				Color [4]					
							Furnish									Primary hue			Secondary hue		
Digestion No.	Type of digestion	Total alkali charged per 100 pounds straw, pounds	Duration of cooking, hours	Run No.[2]	Constituence, per cent	Rate of milling, lbs. per hour	Run No.[2]	Number of chlorinations	Total chlorine consumed per 100 lbs. crude pulp, pounds	Machine run No.	Flax pulp, per cent	Soda pulp, per cent	Dyestuff,[3] kind	Jordan treatment	Weight per ream,[5] pounds	Thickness, 0.001 inch	Bursting per lb. per ream, points	Tensile ave. breaking length, meters	Stretch at failure, per cent	Folding, double folds	White, per cent	Tint	Luminosity, per cent	Tint	Luminosity, per cent	Remarks [6]
B205-1	Soda								none		100	::	none	none	51	28	0.81	5425	1.54	392	48	yellow	6.7	orange	2.6	1.9	Not chlorinated or bleached. (Insufficiently chlorinated; (Yellow from steel rods.
B205-2	do	15.1	9	1and2	3.0	18	1	2	29.9	1	100	::	do	none	47	35	0.79	5046	2.84	116	62	orange	2.6	none	0.3		
				5	9.0	19	2	2	26.7	2	100	::	do	do	50	37	0.90	5478	3.95	537	65	do	3.2	yellow	1.4		
				4	9.0	32	3	2	23.2	3	100	::	do	heavy	43	30	0.75	4870	3.10	101	61	yellow	4.5	green	1.9		
B208-1	Sulphate	15.1	9	2	9.0	23	1	2	19.0	1	100	::	do	none	41	44	0.60	3869	1.65	234	73	do	4.1	orange	1.9		Not screened, formation wild.
				1	6.5	22	2	2	19.0	2	100	::	do	light (a	51	33	0.90	5224	4.40	1236	51	do	5.0	do	3.2		(Insufficiently chlorinated.
														(b	51	34	0.92	6260	4.49	750							(a—first of run. b—last of run.
B208-2	do	15.1	9	1and	9.0	20	(1	2	17.4	1	100	::	do	none-in beat-er 5 min.	48	32	0.56	5010	2.15	27	68	do	4.5	none	..		Run without screening.
B214-1	do	19.6	3	1and	9.5	21	(2	2	15.8	2	100	::	do	none	50	36	0.60	4164	2.22	20	67	orange	2.6	yellow	1.8		$NaHCO_3$ added to chlorine water.
				2			(1	2	14.0	1	100	::	do	do	39	30	0.90	5987	3.43	672	46	do	5.1	do	2.7		(Yellow from steel rods. Treated with HCl
							(2	1		2	85	15	do	do	42	32	0.88	5906	3.95	738	51	do	3.8	do	3.6		(before bleaching with little effect. Pulp
							(																				(also insufficiently chlorinated.
B214-2	do	19.6	3	1	9.0	16	1and2	1	14.6	1	100	::	blue	light	61	40	0.76	5018	2.89	1174	54	red	1.5	orange	1.3		
				2	5.2	9	3	1	14.9	2	100	::	do	none	57	38	0.81	5802	4.59	390	52	orange	5.1	yellow	3.6		
				3,4	6.5	10	4, 5	1	12.1	3	79	21	none	do	48	40	0.67	5273	3.84	182	72	do	3.2	do	1.4		
				and5			and6			4	86	14	do	do	50	41	0.81	5319	4.20	204	72	red	1.7	none	..		
B214-3	do	19.6	3	1	9.0	15	1and2	1	12.5	1	100	::	do	do	49	35	0.93	5944	5.29	311	63	orange	0.6	yellow	0.5		
				Beater run 1			3		15.1	2	100	::	do	do	56	38	0.80	5748	4.37	395	67	yellow	4.0	orange	0.6		a—lighter weight.
B217-1	do	19.6	7	1	9.0	28	1and2	1	9.3	1	100	::	blue	do	(a 49	36	0.59	4969	3.12	42	62	do	8.1	none	..		b—heavier weight.
															(b 68	50	0.64	4951	3.47	76							(Chlorine entirely as bleaching
				2and3	6.0	31	3	..	11.2	2	85	15	do	do	44	34	0.54	4199	2.48	40	68	orange	1.3	yellow	0.9		(powder.
										3	100	::	do	do	58	48	0.65	4622	3.01	85	60	do	2.6	red	0.2		
B221-1	do	9.9	4	1	14.3	15	...	..	none	2	100	::	none	(none-	53	50	0.37	2499	1.26	19	18	do	5.8	yellow	0.5		Not chlorinated or bleached.
				2	13.0	18	1and2	2	22.5	3	100	::	blue	(beaten lightly	60	39	0.87	5049	4.74	688	54	yellow	1.8	orange	1.3		
B222-1	Sodium sulphite		8	1	6.0	31	1	1	22.8	1	100		do	do	(a light	55	38	0.74	5049	3.62	372	64	blue	0.3	none	..		(No alkaline boiling treatment prior to
															(b heavy	61	46	0.72	5198	3.95	1362							(bleaching.
														none		52	38	0.73	4705	4.74	1157	64	do	0.1	do	..		
				2	6.0	31	2	1	18.5	2	100	::	do	do	42	30	0.66	4731	2.23	83	58	do	0.1	do	..		(No alkaline boiling treatment prior to
				Beater run 1			3and4	1	19.1	3	100	::	do	do	53	37	0.80	5486	5.33	802	46	orange	1.3	do	..		(bleaching.
				3	13.0	15	5, 6	1	17.9	4	100	::	do	do	69	50	0.78	5239	5.58	741	56	purple	0.1	do	..		
							and7			5												-blue					
				4	9.0	27	8	1	15.8	(6	100	::	do	do	55	40	0.69	5456	4.42	334	62	orange	1.3	do	..		(7.7 per cent of the chlorine was bleaching
										(7	85	15	do	do	51	40	0.71	5016	4.27	382	67	peacock -blue	0.8	purple -blue	0.1		(powder.
B224-1	Caustic soda and sodium sulphite		8	Beater run 1			1and2	1	20.8	1	100	::	none	do	46	32	0.61	4369	3.45	542	57	orange	1.3	red	0.6		Insufficiently chlorinated.
				1	8.0	19	3and4	1	22.0	2	100	::	do	do	60	42	0.74	4760	4.20	784	50	yellow	4.0	orange	0.6		Paper very dirty.
				2	6.0	22	5	1	25.6	3	100	::	do	do	48	35	0.69	4275	3.61	216	66	do	3.2	do	0.6		Paper very dirty.
				3	9.0	19	6	1	21.1	4	100	::	do	do	47	37	0.74	4935	5.21	452	57	orange	1.3	none	..		Paper very dirty.

[1] For more detailed data see Table 1.
[2] Where numbers are grouped the runs may or may not have been duplicates and average values are tabulated.
[3] These values include the chlorine used as bleaching powder; all of it is expressed as Cl.
[4] When dye was added alum was always used to set the color.
[5] The tests were made under standard conditions of 65 per cent relative humidity and 72 degrees F.
[6] The color analysis was made with the Ives tint photometer.
[7] Ream weight basis 500 sheets, 24 by 36 inches.
[8] The best papers, as judged first by color, second by hydration and formation, and third by strength, were obtained in Digestion B214-2; Machine runs 2, 3 and 4; Digestion B214-3; Machine runs 1 and 2; Digestion B217-1; Machine runs 1 and 2, and Digestion B222-1; Machine runs 1, 2, 3, 5 and 7.

emptying of the contents into a screen box. Steam is admitted near the bottom of the barrel through a ½-inch flexible metal steam hose connection. A pipe spider and a perforated-iron false bottom distributed the steam uniformly.

The chemicals used in the boiling treatment were either caustic soda or sodium sulphite. The concentrations of the solutions varied between 8 and 18 per cent of the pulp (oven-dry basis). The pulp and alkaline solution mixtures were heated to slightly less than boiling temperature, were allowed to stand about 1 hour, and were then emptied into the screen box, drained, and washed. The amount of chemical in the solution at the end of the treatment was not determined. Tests made occasionally with indicators were always positive, however, showing an excess amount had been employed.

Haug[11] in his investigations on the determination of cellulose in wheat straw reported that a 1 per cent solution of sodium hydroxide was more effective in dissolving the chlorinated lignin than the customary 2 per cent solution of sodium sulphite, higher yields of cellulose residues, containing less lignin, being obtained. An investigation of these points was not made here but no difference in the action of the two chemicals could be detected in so far as the quality of the pulp was concerned. Caustic soda was used in most of the treatments. In two experiments (see Table 2, Digestion B222-1) attempts were made to bleach the washed, chlorinated pulp without an alkaline boiling treatment. The whiteness of the finished pulp in one case was very low. The other pulp was of higher white but was blue gray in appearance.

The amounts of pulp and the volumes and concentrations of the chlorine solu-

[11] Haug, Alfons M., "Uber die Natur der Cellulose aus Getreidestroh," Berlin (1916). (G. E. Stechert & Co., New York.)

tions found most convenient for handling in the chlorine treating tank permitted the application of a quantity of chlorine equivalent in weight to about 15 per cent of the pulp. If the pulp required more chlorine than this a second treatment of chlorine water and an alternating alkaline boiling treatment were given. Repeated chlorine treatments were found to increase the tendency of the pulp to become hydrated.

In the presence of water chlorine reacts with lignified fibrous material by substitution and oxidation, with the formation of hydrochloric acid and a chlorine compound of lignin. Other hydrolyitc reactions occur with part of the pentosans and with the easily hydrolyzed hexosans, such as starch and galactan, rendering them soluble.[12] These reactions are accompanied by the evolution of heat. In the process employing gaseous chlorine the reaction is quite vigorous and the action of the hydrochloric acid at the increased temperature is detrimental to the strength of the pulp. The chlorine-water process reduces these effects, since the concentration of the chlorine is lower and the solution both dilutes the hydrochloric acid and absorbs the heat of the reaction. One experiment (see Table 1, Digestion B 208-2) was made in which sodium bicarbonate was introduced into the chlorination tank along with the pulp for the purpose of neutralizing the hydrochloric acid as fast as it was formed. There was, of course, an evolution of carbon dioxide and the consequent production of a large amount of foam. Very little difference was found between the color and the strength of this pulp and the same qualities of a parallel run without sodium bicarbonate.

The close agreement between the comparable amounts of chlorine required in the chlorination of flax pulps in approximately 1-pound lots by chlorine water and the chlorination of 2-gram samples of the same pulps by chlorine gas (by the modified Roe method) was pointed out in the second paper.[5] In the semi-commercial work the amount of chlorine required was also found to agree quite closely with that required in the small-scale experiments. The relation between the chlorine requirement and the lignin content of the pulp has also been mentioned.[6] The lignin content of the semi-commercial pulps before chlorination was not determined but in view of the similarity between these pulps and the small scale pulps (autoclave digestions) in other respects (yield and chlorine requirement) the 1 to 1 relation between lignin and chlorine requirement previously observed[6] is believed to have held also in the semi-commercial work.

The bleaching of the chlorinated pulps with calcium hypochlorite solution presented no difficulties. This operation was performed in the chlorination tank at room temperature. In every case except those mentioned the bleaching had been preceded by an alkaline boiling. The chlorine treatment was usually carried to the point where the pulp was bleachable by using from 5 to 10 per cent of bleaching powder (standard powder containing 35 per cent available chlorine expressed as a percentage of the oven-dry weight of unchlorinated pulp). This point was determined either by bleaching small test samples or by visual inspection.

It has been observed in small-scale experiments[6] that the yield of chlorinated pulp[13] is reduced, between certain limits, to the extent of 1 per cent for every 3 per cent reduction in the yield of crude pulp, whether the crude pulp was obtained by digestion with caustic soda, a mixture of caustic soda and sodium sulphite (sulphate process), or sodium sulphite. In the semi-commercial work the yield of chlorinated pulp was determined in four experiments (see Table 1, Digestions B205-1, B205-2, B214-1, and B214-2). In two of these the crude pulps had been prepared with caustic soda and the other two with a mixture of caustic soda and sodium sulphide (sulphate process). The initial concentrations of the chemicals in the two sets of digestions were different but the temperature schedules were so adjusted that about the same amounts of chemicals (expressed as percentages of available alkali on the oven-dry straw) were consumed. The yields of pulp from the caustic soda digestions were 52.8 and 52.4 per cent (average 52.6 per cent) and from the "sulphate" cooks 54.2 and 50.4 per cent (average 52.3 per cent). The yields of these pulps after chlorination and bleaching were respectively 43.5 and 32.5 per cent (average 38.0 per cent) and 44.0 and 35.3 per cent (average 39.6 per cent). It is recognized that the individual yields of the chlorinated pulps vary quite widely, yet the average values for the two types of pulps check so closely with each other and with those previously determined in small-scale tests that they surely are indicative of the yields to be expected in commercial practice. A predigestion, of any of the types mentioned, that produces a yield of crude pulp either higher or lower than the average values just given may be expected to yield respectively higher or lower amounts of chlorinated pulp, in accordance with the 3-to-1 relation just pointed out. The relation of the type of predigestion to the quality of the chlorinated pulp will be mentioned under the heading "Quality of the waterleaf paper."

Refining of the Chlorinated Pulp and Behavior on the Paper Machine

After the pulps had been bleached they were run into waterleaf paper on a semi-commercial Fourdrinier machine. Mechanical treatment immediately prior to the machine run was avoided as much as possible except in some cases where such treatment was deliberately made in order to observe the effects.

Usually it was found desirable in rod milling or beating to stop the treatment before the pulp had become entirely suitable for the paper machine, since a certain amount of disintegration occurs during chlorination. It happened frequently, however, that the pulp fiber after the chlorination was still too long, and in addition the working of the pulp through the various treatments caused roping of the fiber. Hence it was necessary to do a certain amount of refining before running some of the pulps into paper. The Jordan was used the more in this connection, the beater being used in only three runs. Even the lightest refining in the Jordan increased the hydration of the pulp and, as previously mentioned, those pulps requiring the most chlorine became hydrated most rapidly.

The chlorinated pulps were by nature slow on the paper-machine wire and, as is also characteristic of such paper, the shrinkage on the dryers was high. The formation of some of the papers was wild and cockled because of the long fiber.

Quality of the Waterleaf Paper

The quality of the papers was dependent upon a number of interrelated factors. Of the many variables that have been mentioned, those that appeared to have the greatest effect on the quality of the finished paper were the type of the predigestion and the amount of chlorine used. These two, of course, are related, the more raw pulps requiring proportionately more chlorine. The amounts of chlorine required for various pulps produced on a small scale in a series of caustic soda digestions, ranging from a very raw to a well-cooked condition, has already been reported.[6]

One of the semi-commercial sulphate-process digestions was made with an initial available equivalent of 9.9 per cent of caustic soda (Digestion B22101) and another, also a sulphate process one, with an initial available equivelent of 1916 per cent of caustic soda (Digestion B217-1). In both of these the digestion times were extended to a practically complete consumption of the available alkali. The chlorinated pulp made from Digestion B222-1 produced the densest and one of the strongest papers, although it was one of the lowest in whiteness. The chlorinated pulp from Digestion B217-1 produced the softest paper, which was also among the lowest in strength, particularly in folding strength. This pulp was sufficiently well digested to be bleachable without the aid of chlorine water. The color analysis of the chlorinated and the bleached pulps from this same digestion (B217-1) were about

[12] Hawley and Wise. The Chemistry of Wood, p. 234. (The Chemical Catalog Co., Inc., 1926.)

[13] The term "chlorinated pulp" as used in this paper is the final bleached product prior to processing into paper.

equal and were among the whitest of the papers produced. The straw in several of the experiments was digested under various conditions so that approximately 15 per cent (basis oven-dry straw) of the available alkali (calculated as caustic soda) was consumed (Digestions B205-1 and 2 B208-1 and 2, B214-1, 2, 3). The density, strength, and color of the pulps prepared with this amount of alkali were, in general, intermediate to the extreme values.

The chemical differences between digestions of the type of B205 and B208 have been reported,[8] namely, a "sulphate" digestion removes more lignin and less cellulose than a caustic soda digestion with the same equivalent amount of available alkali. The properties of the chlorinated pulps of these two digesters, though not greatly different, were sufficiently so to indicate that the "sulphate" process is the better type for the predigestion.

It had been observed[8] in "sulphate" digestions that, for a given yield of crude pulp, those made with the higher ratio of available alkali contained less lignin. This fact, as reflected in the quality of the crude pulp and the behavior upon chlorination, was also observed in the pulps obtained in Digestions B214-1, 2, and 3 where the initial available alkali was increased from the 15 per cent used in Digestions B208-1 and 2 to 20 per cent. The digestion times, however, were decreased, so that only approximately 15 per cent of the available alkali was consumed and the yields of crude pulp obtained were approximately equal to those of Nos. B208-1, 2, and 3. These pulps, upon subsequent chlorination, yielded papers that were less dense and less translucent than the others.

Predigestion of the straw with 20 per cent of sodium sulphite (Digestion B222-1) permitted the production of chlorinated pulps among the best as regards strength and color. They were somewhat more hydrated than those obtained from the "sulphate" digestions of the B214 series. The best paper made from this pulp, in regard to texture and appearance, was that which had been beaten before chlorination. It, however, was of lower strength. A predigestion of the straw (Digestion B224-1) with a mixture of 20 per cent (basis over-dry weight of straw) or sodium sulphite and 10 per cent of caustic soda produced pulp that after chlorination was slightly lower than Digestion B222-1 in both strength and color and was hydrated less.

The color of the chlorinated pulps was, at best, of a grayish cast that could be only slightly improved by the addition of blue and red dyestuffs. The degrees of whiteness of the finished papers (to some of which dyestuffs had been added) are recorded in Table 2. The relatively low values are apparent when compared with standard bleached sulphite pulp which has a whiteness determined by the Ives Tint Photometer[14] of 85 per cent.

In manufacturing commercial papers, it is usual to blend various pulps in order to produce satisfactory properties. Several machine runs were made, therefore, in which 15 to 20 per cent of bleached soda pulp was added to the furnish. The soda pulp improved the character of the paper to a considerable degree, particularly by increasing the opacity, softness, and whiteness. The strength was lowered somewhat but not seriously, since nearly all the flax papers had greater strength than that required of bond or printing papers.

None of the papers made in this study were in themselves of commercial quality. This fact was largely due to the limitations of the experimental equipment. Since none of the papers were filled or sized, but all were run waterleaf, they lacked the finish of commercial paper. The most serious disadvantages in the production of chlorine flax pulps seem to lie in the ease with which the chlorinated pulp is hydrated and its lack of brightness of color. These defects may be eliminated by improvements in technique in a commercial operation.

Summary

The pulping of flax straw by the chlorine process has been studied on a semi-commercial scale. The objective of producing pulps suitable for the better grades of paper was not entirely attained, but certain pertinent facts bearing on the process have been disclosed and observations published previously have been confirmed.

The pulps produced by the chlorine process are very easily hydrated and consequently cannot be refined after the chlorine treatment. The mechanical processing must be done after the alkaline digestion and prior to chlorination. Such mechanical treatment is accomplished quite efficiently in a rod mill at moderately high consistences. Steel rods or a steel lining in the rod mill cannot be used because of the resulting contamination of the pulp with iron.

The physical properties of the chlorine flax pulps are largely dependent upon the degree of pulping accomplished in the alkaline digestion. The more raw pulps require proportionately a greater amount of chlorine and the resulting waterleaf papers are, in general, proportionately more hydrated. While the variations in quality that can be attributed to the kinds of chemicals used in the predigestion are of less importance than the degree of pulping accomplished, certain advantages in the use of the sulphate process over the soda have been noted. The chlorinated pulp that has been produced by a predigestion with sodium sulphite is slightly brighter in color and higher in strength than the "sulphate," but is more hydrated.

The strength of chlorine flax papers is generally higher when prepared from the pulps requiring higher amounts of chlorine, presumably because of the higher degree of hydration. The degree of whiteness of the paper, on the other hand, is higher with pulps that require the lower amounts of chlorine. The color of chlorine pulp prepared from the entire flax straw is at best a grayish white.

The addition of small amounts of soda wood pulp to the chlorine flax pulp furnish increases the opacity, reduces the hardness, and slightly reduces the strength of the waterleaf paper.

None of the papers produced in this study were in themselves of commercial quality. The improvements in technique that would be possible in a commercial operation would undoubtedly eliminate many of the defects of these papers. Several of the experimental papers indicate the possibility of incorporation of chlorine flax pulps in the furnish of high-grade papers.

The utilization of flax straw as chlorine pulp depends upon the economic situation. It has not been possible in the present study to investigate thoroughly this phase of the problem. Cheap electrical power in the proximity of the growing area is a prime requisite for such utilization.

[14] Baird, P. K. "Color Measurement by the Ives Tint Photometer." Paper Trade J. 84, 17, 48 (1927).

Reducing Forest Fires

During the summer the Canadian Pulpwood Association had two cards printed featuring a lighted match with the words "Little Fires Make Big Fires! Never Start a Little Fire in the Forest!" One of these cards was 10½ by 13½ inches and was intended to be used as a poster, the other was 3½ by 6 inches, and was designed to be attached to hotel menus. They were distributed to hotels and boarding houses throughout Nova Scotia, New Brunswick, Quebec and Ontario. Members of the association in those four provinces also privately distributed a number of the posters and cards. In all, 2,000 of the large posters and 2,600 of the small cards were sent out.

Ralph P. Bell, secretary of the association, personally had two posters designed and printed for distribution throughout Nova Scotia, one of which presented a forest river scene, the other a woodland road scene. Both bore the words: "This is God's Country—Don't Set It on Fire!" Over 500 of each of these posters were sent out; the river scene in the Spring, immediately preceding the holiday season, the road scene in September, before the hunting season.

Undoubtedly both the cards of the Canadian Pulpwood Association and Mr. Bell's personal cards played some part in the reduction of forest fires this year.

The Rosin Sizing of Paper*

Part II—Experimental

By S. R. Olsen [1] and Ross Aiken Gortner [2]

Although the method of sizing of paper with rosin was discovered some one hundred and twenty years ago, its use, even today, is a more or less "by rule of thumb" method. Empirical methods were employed almost everywhere before the invention of equipment for the determination of hydrogen ion concentration. Empirical methods for sizing paper with rosin and alum are still used in a large number of paper mills, although today it is possible because of careful researches on this subject, to determine the ideal conditions for sizing the paper fibers.

The larger portion of investigations carried out on the sizing of paper apparently have been attempts to prove or disprove some of the many theories concerning the mechanism of sizing paper. Another group has been devoted to attempts for discovering substitutes for alum in the sizing bath.

The present investigation was undertaken in the hope that by using physico-chemical methods of control it might be possible to throw more light on a process, which even today, is but little understood.

The use of rosin as a sizing medium for paper dates back to 1807, when a German watch maker, Moritz Fredrick Illig, described the process. His new method, like many discoveries, came at a time when there was no economical necessity for such a process. With the invention of the paper machine and larger paper productions Illig's method of sizing paper began to receive serious consideration.

It is interesting to note that Illig's first experiments to size paper were carried out with ordinary milk precipitated with alum. This is probably the first recorded reference (Illig) to the use of casein for sizing paper. The resulting paper was described as being satisfactorily sized for writing with ink, but due to the scarcity of milk, he turned his attention to the resins, gums and waxes. He dissolved the resins by means of alkali. This alkali-rosin was added to the pulp and precipitated with alum in a manner very similar to that [illegible].

Paper makers began to use rosin sizing about 1820-1830. Illig's clear and concise description of this process was disregarded and numerous experments were made, which resulted in many secret sizing formulae. These were based on the several theories of this method of sizing paper. Illig propounded a "free rosin" theory, which later was replaced by the aluminum resinate theory and this again succeeded by the colloidal conception of rosin sizing.

Of the more recent work dealing with the rosin sizing of paper, that of Oman and his associates is probably the most comprehensive and outstanding. This is published in Swedish as well as in German. His work has consisted principally of a study of the physical and chemical conditions under which paper is properly sized. He has shown that these conditions change depending upon such factors as the nature and kind of pulp, the kind of paper made and the water used.

The control of the quality of the product resulting from a process as complicated in its mechanism as the sizing of paper is extremely difficult and very uncertain unless adequate scientific means are taken to control the addition of the raw materials as well as to control the physical properties of the mass of chemicals and pulp. In recent years, considerable attention has been devoted to the development of various physical tests for the finished paper such as bursting strength, tearing strength, folding endurance, and size test. Recently a study of the hydrogen ion concentration of the beater contents and paper machine white water has occupied the attention of many paper mill chemists. It has been observed that paper made under conditions such that the alum used is not in excess of that required for complete precipitation of the rosin, is of higher quality than that which results when the paper machine white water is considerably on the acid side of neutrality.[3] It was therefore thought pertinent to attempt to study further, through the use of modern physico-chemical methods the effect of the hydrogen ion concentration on the quantity of rosin precipitated in the process of sizing as well as to study the efficiency of the rosin thus precipitated.

Experimental

The rosin size used was a commercial rosin soap of medium sodium content such as is used in paper mills for the sizing of paper. The concentration of rosin solution varied from time to time, the alum solution was used in 0.33 m. solution for all the experiments.

The pulp used was bleached aspen pulp, cooked by the soda process. Aspen pulp was selected as the most suitable fiber because it offers the greatest specific surface of any common paper making material. In part of the experiments regular commercial pulp was used. In others very highly purified soda aspen pulp containing only small amounts of ash, was used.

Distilled water and C.P. aluminum sulfate were used in preparing the alum solutions in order to eliminate as many variables as possible which might be caused by impurities in commercial "paper-maker's alum" and in tap water. A 0.33 m. solution of alum was used in all of the experiments excepting those of Series IV, Graph IV, where the alum solution was purposely aged at room temperature for 30 days before using.

Methods

In all of the experiments reported below the pulp was "sized" as follows: To 40 grams of moist pulp (10 g. dry weight), contained in a liter Erlenmeyer flask, was added a calculated volume of water, the desired amount of size and of alum in the order named. In each case the rosin was well mixed with the fibers before the alum was added. The water was added in such volume that the consistency of the resulting mixture was about 3 per cent, it being found that stock of that density was most easily manipulated under the conditions of the experiments.

Excepting for the first series of experiments the contents of the flask were shaken every fifteen minutes for two hours. The reasons for this procedure are recorded in the experimental data.

After shaking at 15 minute intervals for two hours, unless otherwise stated, the contents of the flasks was filtered on a Buchner funnel using a 60 mesh wire screen to retain the fibers. The filtrate was passed again through the newly formed pad of fiber in order to insure complete separation of liquid and fiber.

The hydrogen ion concentration of the filtrate was determined in all cases. A Bailey hydrogen electrode was found to be accurate and convenient for measuring the hydrogen ion concentration of these filtrates. A normal calomel half-cell was used in conjunction with this electrode. The E.M.F. of the system was measured by means of a type "K" Leeds and Northrup potentiometer and a high sensitivity galvonometer. By using this equipment

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* Published with the approval of the Director, as Paper No. 801, Journal Series, Minnesota Agricultural Experiment Station.

[1] The work reported in this paper was submitted by Mr. Olsen to the Graduate School of the University of Minnesota, as a Master's thesis. This work was made possible by the Cloquet Wood Products Fellowship. Thanks is due especially to the Northwest Paper Company for the cooperation extended in the laboratory as well as in the mill.

[2] Division of Agricultural Bio-chemistry, University of Minnesota, St. Paul, Minnesota.

[3] Hall. G. Paper Trade Journal 82: 52-58 (1926). Also Technical Association Papers 9: 98 (1926).
Hoffman, W. F. Paper Trade Journal 86: TS P. 143-145 (1928).

duplicate determinations were made which usually checked within one millivolt of each other.

Attempts were made to determine the amount of rosin remaining in the filtrate, but due to the small amounts of rosin usually found it was decided to rely wholly upon the rosin determination of the fiber; that is, the rosin content of the filtrate was thought to be more accurately calculated by difference than by actual determination. The pads resulting from the separation of the filtrate and fibers were dried at 105 degrees. After drying, the pads were broken into small pieces and placed in a large Soxhlet extractor.

In some of the experiments the extracting solution was 95 per cent alcohol to which had been added 10 per cent by volume of 3 per cent acetic acid. After extracting for two hours (about 20 syphonings per hour) the alcohol was distilled off until only the rosin and a small amount of water remained in the flasks. This residue was taken up in ethyl ether and washed twice in a separatory funnel in order to remove salts and other non-resins. The ether layer was then evaporated in a tared weighing bottle, and the residue dried for one hour at 105 degrees and weighed.

In other experiments the extracting solution consisted only of neutral ethyl ether. The extraction was carried out in the same apparatus and in the same manner as above. After the extraction was complete, the ether was evaporated, the residue extracted by the ether, placed in a tared weighing bottle, dried at 105 degrees for one hour and weighed.

Experimental Data.

SERIES I

The first set of experiments consisted of attempts to determine the time conditions for the maximum adsorption of the rosin by the fibers. Accordingly a series of tests were made in which the time of contact between the rosin and fibers varied from approximately zero to sixty minutes. The pulp was extracted with the alcohol-acetic acid solution and the results are shown graphically in Fig. 1. From these results it is readily seen that time is an important factor in the deposition of the rosin on the fiber. About 10 per cent more rosin is adsorbed when the pulp stood for 60 minutes in contact with the rosin than was adsorbed when it stood

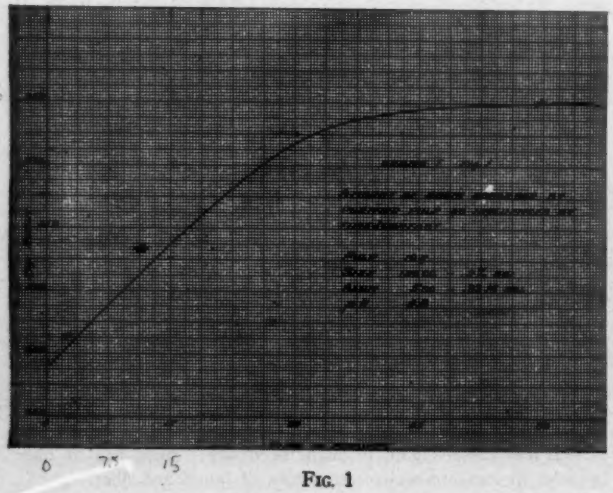

FIG. 1

for only two or three minutes. For this reason, in all of the following experiments the pulp was shaken at fifteen minute intervals for two hours to insure maximum adsorption of the size by the fiber.

SERIES II

The next series of experiments was carried out to determine what effect variations in acidity, caused by adding different amounts of alum, would have on the quantity of rosin absorbed by the fibers. Ordinary commercial aspen soda pulp was used in these experiments. Two series of experiments were completed, the results of which are shown graphically in Fig. 2. These results indicate that there is a variation in the amount of rosin adsorbed by the fiber when different amounts of alum are used to precipitate the rosin size. The variation in the amount of alum added caused a variation in the concentration of active hydrogen ions.

The two series of experiments were carried out in exactly the same manner to check the experimental results. These experiments show that the results are reproducable. The values obtained from

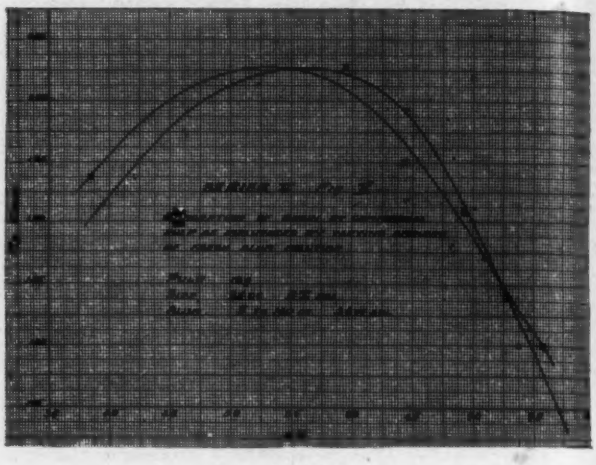

FIG. 2

these experiments check fairly well in all cases. The apparent error is large in some cases, but in all cases the percentage error is comparatively small.

SERIES III.

Two series of experiments were completed to ascertain if possible, what effect the residual salts might have on the sizing properties of the pulp. These were carried out in the same manner and on the same kind of pulp as that used in the preceeding tests (Series II) excepting that it had been especially treated to remove nearly all of the electrolytes. The results of these tests are given graphically in Fig. 3. Variation in the quantities of alum added in these experiments likewise caused a variation in the quantities of rosin adsorbed by the fibers.

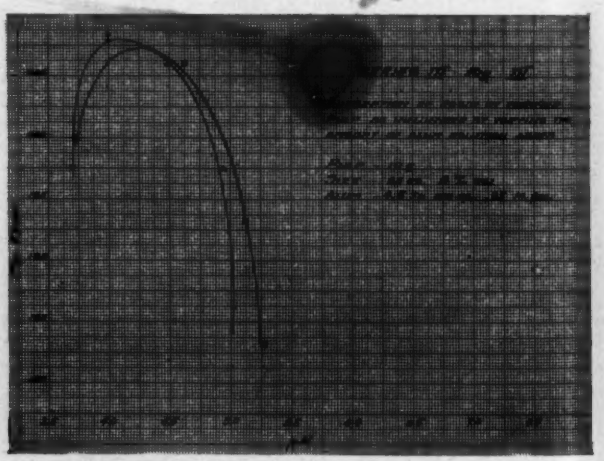

FIG. 3

It was difficult to obtain concordant results in this series of experiments. No greater difficulty was experienced in determining the amount of rosin adsorbed but there was a greater variation in

the concentration of active hydrogen ions when the same amount of alum was added to systems in which the highly purified pulps were used than was observed in those systems in which the commercial pulp was used.

Series IV.

Another series of experiments was carried out in order to determine what effect the aging of the alum solution might have on its properties as a precipitant for the rosin and in the subsequent sizing properties of the rosin as measured by this method. Commercial pulp, the same kind as employed in Series II, was used. This series was carried out in a manner indentical to that of Series II excepting that the alum solution was prepared thirty days before using, while in Series II fresh alum solution was used. The alum used in this Series (IV) was allowed to age at room temperature. The results of these experiments are shown graphically in Fig. 4. These results are similar to those obtained in Series II excepting that the same amount of alum did not give the same concentration of active hydrogen ions, especially when only small portions of alum solutions were added.

Series V.

In all of the previous work the rosin contents of the pulp had been determined by extracting the dried pulp with acidulated alcohol as previously described. In the following Series (V and VI) the rosin was extracted from the dried pulp using ether as a solvent. This procedure has likewise been described in detail. Another change was made in these two series of experiments in that a constant amount of alum solution was added (6 c.c.) and the concentration of active hydrogen ions was varied by the use of sulfuric acid. Commercial pulp, the same lot as used in Series II, was used in Series V. The results of these experiments are shown graphically in Fig. 5.

Series VI.

This series of experiments was carried out in a manner identical with that of Series V excepting that the purified pulp was employed in place of commercial pulp. The results of these experiments are shown graphically in Fig. 6.

In this series as well as in Series III great difficulty was experienced in obtaining concordant results. The system in which the purified pulp was used appeared to be readily influenced by outside factors which caused variations in the concentration of active hydrogen ions, as well as in the amount of rosin adsorbed. Apparently the buffers which prevented sudden and great change in the system in which crude pulp was used were absent in the purified pulp experiments.

It will be noted that the amounts of rosin extracted and reported as adsorbed is in a few cases somewhat higher than the amounts of rosin added. An extraction of the unsized pulp under similar conditions removed only slight traces of rosin-like materials. Time did not permit an investigation of this material extracted from the pulp. This was not one of the major problems connected with the study.

All of the experiments were carried out in the same manner, and the results are thought to be comparable, although the amount of rosin added and that extracted do not exactly agree. This difference is somewhat more than can be attributed to experimental error, which was on the average of about 2 mg. of rosin. In only three instances however, did the "excess" rosin equal or exceed 10 mg. All three of these instances occured in Series I.

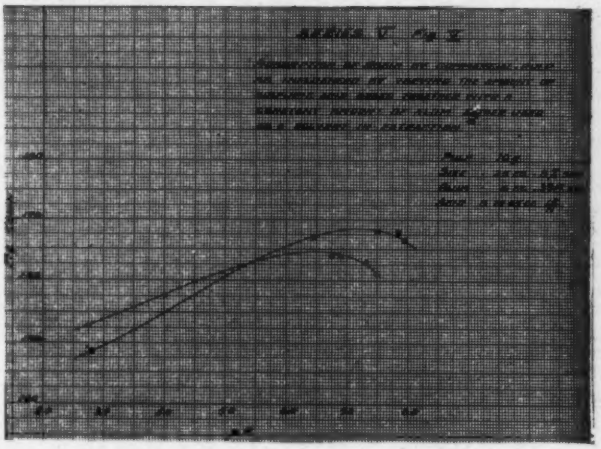

Fig. 5

There appears to be but little agreement in the literature, as well as in the art, as to the optimum pH in the beater or of the white water from the paper machines for the sizing of paper. This optimum pH has been found to range from about pH 3.25 to about pH 7 for rosin sized papers. The optimum concentration of active hydrogen ions for the precipitation of aluminum hydroxide from a solution as shown by Shaw is about pH 5.5. (4) It is reasonable to expect that this might be the optimum pH for obtaining the best sizing results in manufacturing paper. Apparently such is not always the case under mill operating conditions.

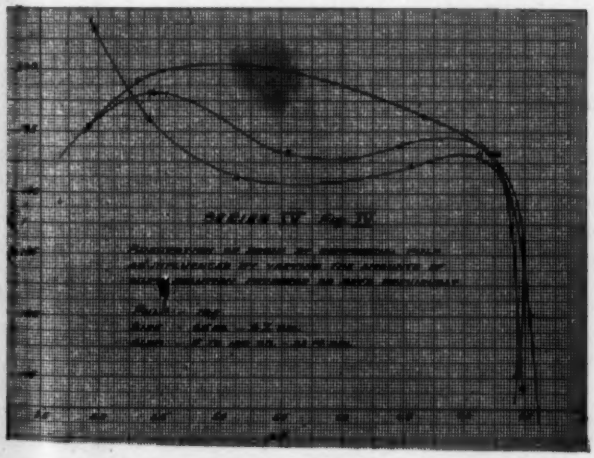

Fig. 4

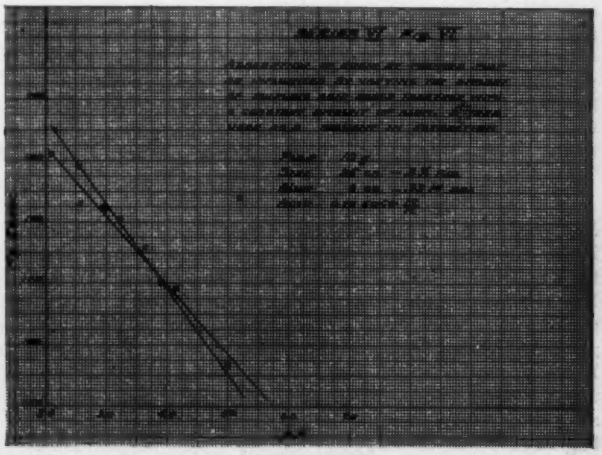

Fig. 6

The commercial pulp employed in these experiments contained about 0.6 per cent ash while the purified pulp contained but a trace of ash. When such a striking difference is found in the

[4] Shaw, M. B. Paper Trade Journal No. 10, 59-62 (1925).

amount of rosin adsorbed under the same conditions by two pulps of the same origin, it is probable that different types of pulps would show even a greater variation. It is of interest to note that the maximum amount of rosin adsorbed is about the same in both cases but the concentration of active hydrogen ions where maximum adsorption takes place is not the same.

From this data it appears that the physical state of the fibers and as well as their ash content (buffer value) greatly influence the optimum pH necessary in the sizing bath for maximum adsorption of size by the fibers.

For this reason it is assumed that for every type and quality of pulp there may be a different optimum pH: i. e., the pH range at which the maximum adsorption of rosin would take place. This may be an explanation, in part at least, why paper mill chemists have never been able to agree as to an optimum pH of the system for sizing papers of various kinds. To illustrate the point, the optimum pH of the system for sizing a pulp made by an acid process, such as sulfite pulp, may be about 4.5, while for a pulp cooked by an alkaline process such as kraft pulp, the optimum pH may be about 7.

Experiments with time as the only variable gave the results shown in Fig. 1, which seems to indicate that time is an important factor. Commercially this would not offer any serious difficulty since sizing is usually done in the beaters and the time elapsed before the pulp is made into paper is sufficient to insure complete adsorption of the rosin. Where purified soda aspen pulp is sized the optimum hydrogen ion concentration was found to be a pH of 4.25. This is explained by the lack of buffers, which are present when commercial pulp is used, to depress the ionization of the acid formed.

The optimum hydrogen ion concentration for sizing of commercial soda aspen pulp used in this experiment has been found to be pH of 5.5. This figure cannot be taken too literally since it has been previously shown that various mill conditions, such as, degree of washing, character and kind of pulp, the kind and amount of filler used, and the hardness of the water, all influence the optimum hydrogen ion concentration to a considerable degree.

When alum solutions are aged at room temperature for a period of several weeks the results are quite different from those obtained when fresh alum solutions are used. This difference is not easily explained since the hydrogen ion concentrations of the two alum solutions are practically the same. It is suggested that in the case of the aged alum perhaps the aluminum sulphate had hydrolyzed and a greater amount of colloidal aluminum hydroxide was formed, but this offers no explanation as to why the slope of the curve should be altered in the manner indicated.

It should be noted that neutral ether does not extract as much rosin as does acidified alcohol. This will be seen in comparing Fig. 5 and 6 with 2 and 3. A small amount of sulfuric acid was used in the experiments recorded in Fig. 5 and 6, but this should not have caused this radical change. This is explained in part, at least, by the fact that not all of the rosin is extracted by the neutral ether, since subsequent extraction with acidified alcohol yields a rosin-like substance which the ether does not remove. However, this material is soluble in ether which seems to indicate that the complete removal of rosin from the fibers with alcohol after having been extracted with ether is not a case of solubility but suggests that the charge of the fibers must be neutralized so as to release the rosin particles. This would suggest a colloidal adsorption between the rosin, alumina, and fibers, rather than a chemical reaction between these substances, since as far as is known, the small amount of acetic acid which is used does not act as a reactive acid but merely as a means of changing the charge of the system.

Summary and Conclusions

1. The curve resulting when the amount of rosin adsorbed by cellulose fibers is plotted against the time of contact between the pulp slurry and the rosin, resembles the adsorption isotherm of known colloidal reactions and is considered to be a colloidal phenomenon and not a classical chemical reaction between the rosin, alum and fibers.

2. The amount of residual ash in the pulp influences the optimum hydrogen ion concentration as well as the amount of rosin adsorbed.

3. Under the conditions of these experiments the optimum hydrogen ion concentration for the maximum adsorption of rosin was from pH 4.5 to 6.5 for commercial pulp and from pH 4.0 to 4.5 for the purified pulp.

4. Under commercial conditions, the optimum hydrogen ion concentration for the best sizing is probably from about pH 4.5 to 6.5 depending on the type of pulp used.

5. The results of these experiments indicate that no universal optimum hydrogen ion concentration for the rosin sizing of paper can be used, but rather that this optimum hydrogen ion concentration varies with such factors as, the kind and quality of pulp and its degree of washing, the kind and amount of filler used, the amount and hardness of water used, as well as the quality of paper being manufactured.

6. It is recommended that each mill work out its own standards for the sizing of paper, basing their experimental work on the fundamental principles of this process.

7. It has been found that a neutral ether extraction does not give a true value for the amount of rosin adsorbed.

To Be Plant Engineer for Smith Paper Co.

LEE, Mass., October 16, 1928.—Roland A. Packard, formerly plant engineer for the Ludlow Manufacturing Associates, of Ludlow, has been secured as plant engineer for the Smith Paper Company of this town. He has already entered upon his new duties. He was with the Ludlow firm for a number of years as expert in power efficiency. The power situation has been changed of late years in Lee. Hydraulic power was once the sole reliance for the numerous paper mills here. Now the Smith Company uses hydraulic power to a large extent but also hydro-electric energy to a considerable extent employing direct water power to turn certain parts of the machinery and for processing. Three mills are used by the company at scattered points in Lee and they also have two unused plants in Lenox. About five years ago an addition was built to one of the mills and an admirable electrical system installed.

In the keenly competitive field of tissue papers the Smith Paper Company has been able to increase its business this year over the level of last year. Good measure of production has been maintained in electrical and condenser papers, carbon paper, cigarette paper and India paper for book use.

New Chief Engineer for Cutler-Hammer

Appointment of N. L. Mortensen as Chief Engineer for the Cutler-Hammer Manufacturing Company, Milwaukee, Wis., has been announced effective September 1.

T. E. Barnum, former chief engineer, has been appointed consulting engineer for the company, in which position he will be able to give uninterrupted attention to engineering problems and outside engineering relations.

Mr. Mortensen has been connected with Cutler-Hammer for 21 years, the last 5 of which have been as assistant to Mr. Barnum. Born in Denmark and receiving his technical education there, and in Germany, Mr. Mortensen's versatility as a control engineer has long been recognized by United States industry. Articles by him have appeared frequently in the technical press and he has delivered numerous papers before electrical societies. He is a fellow of the A. I. E. E. and a member of the A. I. S. E. E. Mr. Mortensen assumes his new post with the best wishes of his host of friends and all the industry in general.

Section of the

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THE AMERICAN PAPER AND PULP ASSOCIATION

Edited by
THOS. J. BURKE, C. A., Sec.-Treas.

Working Capital*

By J. Garnett Harper, A.C.A.

A strict check on Working Capital is very necessary in these days of credit accounts, and the following notes have been prepared to introduce the student to a subject which is by no means so simple as it appears. The notes are not exhaustive—they could not be—they are designed merely as a sign-post to some very interesting questions.

Working Capital is usually, and rather indistinctly, defined as the excess of Floating Assets over Current Liabilities. The definition gives only a misty and uncertain outline: it does not make it clear what the special properties are of Working Capital; rather it tells us how to find its amount than what it is when found.

Working Capital is the surplus of liquid assets available, after present indebtedness has been discharged, to meet accruing liabilities and charges as and when they fall due, and is designed to tide over that period of waiting which precedes the returns to the business, and to afford funds for fluctuations in the volume of business, as necessity arises.

Four Main Factors

The amount of Working Capital is dependent upon four main factors, and a multitude of lesser circumstances which vary in nearly every business. The main factors come under two heads: (1) Cost Factors, and (2) Time Factors; thus:—

A—The estimated amount of the cost of sales for a period corresponding to the term of credit allowed by suppliers.

B—The estimated amount of running expenses for a period corresponding to the term of credit allowed to customers.

From which follow the necessity for the Time Factors:—

A—The term of credit allowed by suppliers.

B—The term of credit allowed to customers.

This arrangement appears to make no provision for Stock; but, as it will be shown, Stock is Capital Expenditure influencing Working Capital only because it fluctuates. And the fluctuation of Stock is not a separate factor, but part of the circumstances which control the amount of the cost of sales. We must take the Stock figure into consideration in certain of our estimates, but only for these reasons, and not because it has any academic claims to the distinction.

In this connection it may be well to point out that Working Capital is capital for working a business: it is not capital for making a business. The amount necessary for the purposes of Capital Expenditure has nothing to do with Working Capital; but, for reasons to be seen later, it is necessary in estimating what the Working Capital of a business is—but not in estimating what it ought to be—to pay due regard to Capital Commitments.

Now, how would these factors act, if there were nothing to hinder them? Firstly, where the term of credit allowed to customers exceeds the term of credit allowed by suppliers, you will see signs of their activity in the necessity to make provision for payments for raw materials and so on—the cost of sales—during the period of credit to be allowed to customers. That is, you must see that there are sufficient funds to cover the cost of sales for a period equal to the term of credit to be allowed to customers, less the cost of sales for the period between the last payment to be made to suppliers and the first remittances from customers. You must find how many times Time Factor (A) will expire during the currency of Time Factor (B), and multiply Cost Factor (A) by this number. Where, however, the term of credit allowed by suppliers exceeds the term of credit to be allowed to customers, then the effect will be that the suppliers are advancing, in the form of credits, part of the capital necessary to work the business; and the Working Capital, other things being equal, will be correspondingly less.

Running Expenses

So much for the cost of sales. Now, as to running expenses: Cost Factor (B). These should be provided for, for a period equal to the term of credit to be given to customers; after which time, if prices are right, and business does not fall below the minimum turnover to insure payment of overheads, money should come in in sufficient quantities to cover the expenses as they fall due.

We can now, therefore, prepare a statement on the following broad lines:—

Cost of Sales (to be paid before customer's credit expires)..... £
Running expenses (for period corresponding to term of credit allowed to customers) ..... £

Total .....

But this does not by any means give us the amount of the Working Capital required; it gives us only a figure upon which our calculations of the amount can be based. To it must be added, among other things, an ample margin to permit of increased business, to cover all the unexpected charges, not being capital charges, to which the business may from time to time be subject to meet—and this is important—such a contingency as a rise in values, and then to allow generously for errors and omissions in calculation and estimation.

You will find, for instance, where you are dealing with a new business, that you cannot, at first, count on the same regular and prompt returns as you will be entitled to expect in an established business. And, in any business, you must be wary of seasonal fluctuations in turnover. Should it so happen that the turnover

*The Accountants' Journal.

Relation of Field Warehousing to Accountancy*

By A. T. Gibson

A tendency which is growing rapidly among business of every description is that of regarding the accountant as an advisor, particularly in matters of business finance. His experience in the production of cost systems has taken him into the very heart of manufacturing and the variance in methods of diverse industries has given him first-hand information which is obscured from the man who is more or less isolated in one line of endeavor.

There is no particular advantage to an accountant in knowing what this or that concern made or lost this year or any other year, but there is a distinct advantage in his knowing how any company financed itself into a position to do a certain amount of business, because any usable information of this kind may enable him to advance a plan that will benefit other clients.

A Subject of Growing Interest

There is a development in the warehouse industry with which it is believed every accountant, public or otherwise, should be thoroughly conversant. It is field warehousing, and while several hundreds of manufacturers are now employing this means of financing large inventories it is still a subject of growing interest upon which little, if any, literature has yet appeared for the general reader.

The value of public-warehouse receipts in the financing of domestic as well as foreign merchandise is, no doubt, well known. The warehouse receipt has been developed into a credit instrument through recognition of the fact that title to the merchandise covered by the receipt falls to the party indicated on its face in the case of the non-negotiable receipt and to the holder in the case of a negotiable receipt. As a result of this particular virtue, banks and other commercial-finance institutions lean very strongly toward warehouse receipts as security for bankers' acceptances as well as for any other form of credit.

While the metropolitan public-warehouse company is able to serve the manufacturer or the producer with respect to commodities in the process of distribution it has heretofore been unable to release working capital that is tied up in large inventories at the plant or in the producer's warehouse.

Practically Reversed Since World War

With the advent of hand-to-mouth buying nearly every manufacturer has found that one phase of merchandising has been practically reversed since the world war. Where the retailer frequenetly used to anticipate his demands for from six months to a year, he is now found buying from day to day, week to week, or at best from month to month. This tendency has placed the jobber in a more or less similar position and the result is that the manufacturer has to rely on his own ability to anticipate demand and keep an adequate inventory at all times to take care of any reasonable day-to-day demand.

Naturally, this condition of hand-to-mouth buying has placed demands on the average manufacturer's working capital that keep him busy to know where to turn next, despite the fact that he may formerly have considered himself comfortably financed. His exact position is that of doing the same amount of business with a much slower rate of turnover. If he brings more capital into his company to do the same volume of business it shows a decrease in his earnings and if he does not he can not meet a hand-to-mouth buying market.

To cope with this situation there has been developed a system of creating a public warehouse in the manufacturer's own plant by leasing that part of his plant in which his inventory is kept.

Borrowing at Lowest Rate of Interest

By introducing a field warehouse into his factory any manufacturer of merchandise for which there is a ready market may obtain bona-fide public-warehouse receipts which will enable him to borrow the highest percentage of value of the goods represented at the lowest possible rates of interest. In this way he relieves his working capital greatly and still has the necessary inventory from which to draw as desired.

The matter of releasing goods from an inventory that is being field warehoused is comparatively simple even though the manufacturer does not have free access to the merchandise while it is in the custody of the warehouseman. Goods are released, customarily, by repaying a proportionate amount of the money borrowed on them, but, of course, this is a matter of arrangement with the lender. As previously stated the warehouse receipt may be used as a basis for straight loans or bankers' acceptances, depending on the type of commodity represented.

Not only will the expert accountant find field warehousing a solution to the matter of financing substantial concerns which desire a greater turnover on their working capital in order to permit greater production, but he will also find it a most valuable solution of the problem of the manufacturer who, for various unforeseen reasons, finds that he needs a larger amount of money than is obtainable through open credit.

* Journal of Accountancy.

Evils of the Inquisition*

Several practicing accountants have drawn attention recently to a form of questionnaire which has been sent out by trade organizations and addressed to accountants who have been engaged in auditing the accounts of concerns engaged in such trades. The copies which we have seen are very much alike in purport although the language varies in different cases. In substance, the questionnaires begin by explaining that the purpose in mind is to prevent abuses by customers seeking credit privileges. The accountant is then informed that the writer is in receipt of a financial statement showing certain assets, liabilities and net worth and that the addressee has been named as the auditor. The following questions are then asked:—

1—Have you made a complete audit of the books?

2—Have the proper tests as to inventory been made?

3—Are the outstanding accounts old?

4—Has reserve been set up for doubtful accounts, and have bad accounts been written off?

5—Do you conduct an audit from month to month, and how long have you been the auditor?

6—Has the bank confirmed the balance claimed in the statement?

7—Have accounts receivable been verified by circulation?

8—Are notes receivable evidenced by customers' paper?

9—Do you consider the capital correctly stated? etc., etc.

In one instance when the questions were not answered another letter was received to the following effect:—

"It is customary with us to communicate with the accountants with reference to all financial statements and practically without exception accountants are glad to co-operate with mercantile houses.

"As an accountant, you will appreciate the fact that your fail-

* Journal of Accountancy.

is by no means uniform in the year, the trader will not be justified in locking up what may appear to be superfluous Working Capital in unrealizable assets; for there are the lean months to provide for. And, in good times, when the trader is fortunate enough to be troubled about the proper disposal of a surplus on his trading, you must help him to consider how this will affect his Working Capital; for, if he makes reserve, it will swell the floating balance—unless capital expenditure has already been entered upon—but, if the estimate of profits is over liberal, and none of it is held back, the distribution will necessarily come out of those funds which have been ear-marked for the satisfaction of creditors, expenses, and contingencies. And so, if he is grieving over a loss, not the sincerest sympathy for him must deter you from adding to his misery by explaining that the loss must necessarily have eaten into his Working Capital, or some other of his reserves, for his subsequent trading must be conducted on the bitter understanding that his margin of funds has been reduced.

Seasonal increase in book-debts, without a proportionate increase in business, an increase in business requiring, among other additional expenses, an increase in the amount of stock carried, the slowness of debtors in paying and the insistence of creditors in demanding payment, and Capital Commitments, of which more later, are other things which influence the Working Capital, and must be duly considered.

Checking Working Capital

Now let us see what can be done to check, at suitable intervals, the amount of Working Capital. We have prepared our Budget to estimate what ought to be the Working Capital of the business: now we are anxious to see, within a little, what it really is.

Remembering what we have already decided about Working Capital—that it is a *surplus* available to meet *accruing* liabilities—we descend upon the business one day, and draw a very definite line between what has happened, and what will happen in the future, and proceed to take out certain vital figures.

We decide that it is just within our powers to look ahead one month—that, rather than make estimates which a month's events will unscrupulously overthrow, we will come down upon the business again at the end of the month, and, after making our demarcation again, will look both backwards, and forwards; first, to see how our previous estimates materialized, and then to make further estimates for another month. We decide, in fact, our trader wisely permitting, to prepare monthly statements of Working Capital.

Elements in This Statement

What particular elements will go to make up this statement? Floating Assets and Current Liabilities, our popular definition tells us: so we weigh the one against the other, and, this time, we shall be able to bring in the Stock figure without protest from our academic consciences; for it is a Floating Asset, and we have now to watch its rise and fall.

The statement we prepare will take this form, or some variation or extension of it:—

MONTHLY STATEMENT OF WORKING CAPITAL

Stock as at date of statement		£
Debtors estimated to pay within the month following the date of this statement		£
Cash and Bank Balances		£
Any other liquid asset (Investments, etc.)		£
Total		£
Less:		
Creditors for amounts falling due within the month following the date of this statement.	£	
Capital Commitments (if any)	£	
Stock estimated to be held at the end of month.	£	
		£
Balance—being Working Capital available to meet payments for running expenses and to meet all other contingencies		£

It will be seen that Stock has been brought in at the figure at which it stands at the date of the statement, and is taken out at the figure at which it is estimated to stand at the end of the month, when another statement will be prepared. By this means, effect is given in the statement to any estimated fluctuation in Stock. If, for example, the month is started with a heavy Stock which, it is believed, it will not be necessary to maintain, then, by deducting a normal Stock figure as at the end of the month, the statement should show, other things being agreeable, a return to the customary level of Working Capital which was not before reached because of the heavy purchases.

It is very important indeed that the Stock fluctuations be watched, particularly in order to see that the Stock as estimated to be held at the end of the month does actually fall near the estimate. If the increased Stock is to be maintained, then it is clear that consideration must be given to the question of introducing further capital, if it seems necessary; while if the Stock increase is the result of a gamble on the market, and the goods are not disposed of as expected, it will be apparent that Working Capital has been lost, and such transactions will have to be severely criticized.

Allowance for Capital Commitments

It will also be noted that allowance is made in the statement for Capital Commitments. Now, in principle, Working Capital is not concerned with Capital Commitments beyond those necessary for normal trading. You may reckon to draw on your Working Capital for the purposes of financing an increase of trade activities, but you do not reckon to draw on it for purposes of Capital expenditure of any other kind. You do not, for instance, charge Working Capital with the cost of building new premises. It is not possible always to draw a definite line between an extension of the business and a fluctuation in the volume of it, but where it can be said that the increased business is an extension rather than a fluctuation, then the increase should not be a further burden on Working Capital; it should be either a reason for the introduction of further capital or a burden on capital reserves.

But in practice we are up against the fact that where a statement brings in all the liquid assets against the current liabilities, it will in all probability bring in, not merely what may be rightly termed Working Capital, but also what may be termed capital reserves; that is to say, undistributed profits. In any consideration of Working Capital, therefore, based upon a statement such as that set out above, it must be remembered that the balance represents, not only an amount available for current business purposes (including the ample margin for contingencies upon which we have to insist), but it also represents the amount which has been held back out of profits to provide for the Capital Expenditure which any growing business is sure to make sooner or later. This is the justification for taking into account Capital Commitments in the statement of Working Capital.

The Statement as set out, being prepared regularly each month, will not only afford a guide to what ventures may be embarked upon in the future, or to what transactions must be abandoned; it will also give some indication, when compared with preceding statements, of what has happened in the past, and how the items involved have fluctuated in relation to one another; and will be useful in directing attention to any weakness in the course of business which might otherwise be overlooked until the liquid resources became so short as to affect seriously the stability of the whole concern.

Utilities Corp. Inspects Timberland

GOUVERNEUR, N. Y., October 15, 1928.—J. E. Kieb, forester of the Northern New York Utilities and the St. Regis Paper Company and H. J. McVey recently completed an inspection of 300 acres of timberland in Herkimer county owned by the Utilities Corporation which is to be cut at once to afford flow ground for a larger power dam which is under construction at that point. The timber will be cut the coming winter and spring and will total several hundred thousand feet. Mr. McVey will be in charge of the cutting operations.

COST SECTION

ure to respond can be construed one of two ways; i. e., that you do not care to bother with such matters or that the figures are incorrect and not subject to certification.

"While we have the highest regard for the subject company it will naturally be necessary for us to advise (client's name) of the situation.

"This is a service to which your client is entitled and as previously stated, most accountants are pleased to co-operate with mercantile houses."

The assumption of indifference to correctness which is contained in this last quoted letter is quite reprehensible. In the first place no accountant would supply the information sought by the questionnaire without the written consent of the client. In the second place the authors of such questionnaires have neither legal nor moral right to demand information of the kind mentioned. It is quite true that the client should be willing to give full information when he is in search of credit. The credit agencies such as Dun's and Broadstreet's and others are generally expected to obtain from concerns which they investigate information which will make it possible to express a reasonable opinion, but even in their case the accountant can not be called upon for information which the client may wish withheld. Where bank credit is concerned the proper procedure is for the banker to request the client of the accountant to grant the accountant permission to give such information as is required, and when the permission is granted the accountant, of course, will have no objection to compliance. But we doubt if any banker would hold out such a threat as that contained in the letter from which we have quoted. Certainly no reputable banker would do so. The organizations from which the questionnaires have emanated are of good standing in the community and the whole procedure is undoubtedly based upon a lack of appreciation of the confidential relationship which exists between the acountant and the client. We are living in an age of analysis and investigation. Government departments have asked questions which are irksome and troublesome to answer and they have been enabled by legislative enactment to compel response. Perhaps the efforts which are being made to obtain information by trade organizations are merely a outgrowth of the system of inquisition which has obtained the stamp of government approval; but, whatever may be the cause, the effect is the same. The accountant is not called upon by any principle of justice or decency to reveal what he has learned in the course of confidential investigation, and he certainly will not do so. Attempts at coercion are merely silly.

Selling Goods Instead of Terms*

By Stephen I. Miller, Executive Manager, National Association of Credit Men

Of the three principal elements of competition—cutting prices, giving service and granting sales terms—the last probably lends itself most readily to abuse. At best, the practice of extending excessively long terms is an artificial sales stimulant which complicates the machinery of business by its uneconomic application to the problem of profits.

The inducement of long terms is an outgrowth of cutthroat competition. In the light of history, it is reasonable to believe that business will put an end to the practice, or greatly modify it.

Burning the Business Candle

Granting long terms burns the business candle at both ends—at the manufacturer's or wholesaler's and at the retailer's as well. For the manufacturer, in a great many industries, profits per unit of production have become exceedingly small. In order to make a supporting profit, it has become necessary for him to sell increasingly larger volumes of units; and, in order to sell as many units as possible, in competition with other manufacturers whose unit profits also are small, he has come to regard the sale terms as necessary to secure and hold his trade.

As for his customer, in the case of the manufacturer, conditions in the distribution field frequently make it imperative that the retailer demand long terms from his manufacturer or middleman creditor.

The merchant in competition is faced, on the one hand, by the chain store and on the other by fellow retailers, whose number is large.

Selling terms, by the very nature of the practice, often leads to excess, and, consequently, to general abuse. The merchant who once asked for two months in which to pay is inclined to ask for a three months' period, then he demands four and even six months.

We may go so far as to say that, in some instances, the retailers who pay their bills promptly are financing those who exist only because they are granted long terms of sale. The money paid to manufacturers and wholesalers by their preferred customers is used to keep their unpreferred accounts alive.

The Age of Free Initiative

The origin of the practice and its growth may be traced to the business freedom which has been the birthright of the United States business man. The age of severe restriction in business had just passed when our nation was established and during all of our history, we have been living in the age of individual initiative.

We have been free to develop our capabilities and to capitalize our tremendous natural resources unhampered save by moral law and a few restrictions.

Individual initiative has made us a great nation, but it has carried our business abilities out of bounds in many directions. We need new codes, new standards, and other co-operative practices to neutralize the evils of individual initiative carried too far. We must pass from the age of indivdual initiative into the new age of co-operation.

The Evil of Selling Terms

The evil of selling terms reflects the trend of the times by showing itself as an offshoot of cutthroat competition. It is a by-product of individual initiative out of bounds; and it suggests as a remedy cooperative effort of manufacturers and wholesalers.

Credit Time Limits

It seems reasonable to believe that further study within industry groups to determine an economic policy for setting credit time limits would help solve the problem. Then again, if inducements other than price must be given, is it not reasonable to conclude that an extension of merchandising service would bear the most fruit? Merchandising service gives promise of future dividends, while static capital represents a dead loss.

The elimination of the evil presented by the excessive granting of terms would probably do a great deal toward solving the problems of distribution. Surplus outlets, cut off from unduly long credit privileges, would be lessened.

Business Would Be Improved

Manufacturers and middlemen would sell just as much merchandise through fewer outlets, thereby lowering the costs of selling and transportation and giving themselves the benefit of the saving which might be divided with the consumer. Thus, from a broad economic point of view, it seems that business would be improved if only goods were sold and if excessive sales terms were taken out of stock.

* Executive Service Bulletin.

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WEEK ENDING OCTOBER 13, 1928

SUMMARY

Cigarette paper .....2,517 cs.
Wall paper .....14 bls., 4 cs.
Paper hangings .....12 bls., 29 cs.
Hanging paper .....1 cs.
News print .....7,291 rolls, 197 bls.
Printing paper .....111 cs.
Wrapping paper .....85 cs.
Packing paper .....26 cs.
Decalcomania paper .....65 cs.
Drawing paper .....18 cs.
Filter paper .....8 cs.
Baryta coated paper .....160 cs.
Metal coated paper .....16 cs.
Surface coated paper .....61 cs.
Gold coated paper .....7 cs.
Coated paper .....7 cs.
Photo paper .....4 cs.
Tissue paper .....86 cs.
Cover paper .....3 cs.
Crepe paper .....96 bls.
Writing paper .....27 cs.
Colored paper .....43 cs.
Stencil paper and ink .....43 cs.
Miscellaneous paper ..1,224 rolls, 125 bls., 198 cs.

CIGARETTE PAPER

British American Tobacco Co., Olympic, Southampton, 54 cs.
British American Tobacco Co., Mauretania, Southampton, 60 cs.
Standard Products Corp., Paris, Havre, 40 cs.
De Manduit Paper Corp., Vincent, Havre, 239 cs.
De Manduit Paper Corp., Indep. Hall, St. Nazaire, 1,324 cs.
American Tobacco Co., Indep. Hall, Bordeaux, 800 cs.

WALL PAPER

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F. J. Emmerich, Albert Ballin, Hamburg, 2 cs., 7 bls.
J. E. Bernard & Co., Albert Ballin, Hamburg, 6 bls.
A. C. Dodman, Jr., Inc., Olympic, Southampton, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Farmer, London, 12 bls., 8 cs.
Whiting & Patterson Co., Inc., Olympic, Southampton, 8 cs.
Whiting & Patterson Co., Inc., Mauretania, Southampton, 13 cs.

HANGING PAPER

A. C. Dodman, Jr., Inc., Rochambeau, Havre, 1 cs.

NEWS PRINT

Perkins Goodwin & Co., Muenchen, Bremen, 504 rolls.
New York Telegram, Cornerbrook, Cornerbrook, 2,728 rolls.
Brooklyn Times, Cornerbrook, Cornerbrook, 2,990 rolls.
Clinton Paper Co., Cornerbrook, Cornerbrook, 942 rolls.
F. C. Teipel & Co., Albert Ballin, Hamburg, 65 rolls.
Walker, Goulard, Plehn Co., Lutzow, Bremen, 197 bls.
Journal of Commerce, Lutzow, Bremen, 62 rolls.

PRINTING PAPER

Dingelstedt & Co., Muenchen, Bremen, 9 cs.
Judson Freight Forwarding Co., Muenchen, Bremen, 28 cs.
P. C. Zuhlke, Lapland, Antwerp, 59 cs.
International Forwarding Co., A. Ballin, Hamburg, 5 cs.
Martin & Bechtold, Lutzow, Bremen 13 cs.

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DECALCOMANIA PAPER

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C. W. Sellers, G. Washington, Bremen, 20 cs.
L. A. Consmiller, G. Washington, Bremen, 6 cs.
B. F. Drakenfeld & Co., Baltic, Liverpool, 20 cs. (duplex).
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C. K. MacAlpine & Co., Stockholm, Gothenburg, 21 bls., 943 rolls.
J. E. Andersson, Stockholm, Gothenburg, 6 cs.
Standard Products Corp., Rochambeau, Havre, 59 cs.
W. J. Byrnes & Co., Rochambeau, Havre, 30 cs.
Titan Shipping Co., Minnesota, London, 10 cs.
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Chemical National Bank, Muenchen, Bremen, 57 bls. rags.
Philadelphia National Bank, London Exchange, London, 101 bls. rags.
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W. Schall & Co., London Exchange, London, 69 bls. rags.
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Castle & Overton, Inc., Carlier, Antwerp, 141 bls. rags.
Castle & Overton, Inc., A. Ballin, Hamburg, 24 bls. rags.
A. W. Fenton, Inc., A Ballin, Hamburg, 35 bls. rags.
C. B. Richard & Co., Rochambeau, Havre, 80 bls. bagging.
Star Woolen Co., Baltic, Liverpool, 24 bls. rags.
J. Cohen Son Co., Scythia, Liverpool, 52 bls. paper stock.
Castle & Overton, Inc., Sicilian Prince, Leith, 54 bls. bagging.
E. J. Keller Co., Inc., Sacandaga, ——, 343 bls. flax waste.
E. J. Keller Co., Inc., Sacandaga, ——, 86 bls. threads.
Castle & Overton, Inc., Sacandaga, Antwerp, 6 bls. flax waste.
Castle & Overton, Inc., Sacandaga, Antwerp, 14 bls. rags.
Star Woolen Co., Sacandaga, Antwerp, 17 bls. rags.
Leigh Textile Co., Cacandaga, Antwerp, 111 lbs. cotton waste.
A. W. Fenton, Inc., Lutzow, Bremen, 47 bls. rags.
Bank of New York, Kofuku Maru, Genoa, 32 bls. rags.
Lehr Manfg. Co., Kofuku Maru, Oran, 142 bls. bagging.
Lehr Manfg. Co., Kofuku Maru, Oran, 525 bls. rags.
E. J. Keller Co., Inc., Kofuku Maru, ——, 120 bls. rags.
Banco Com'l Italiane Trust Co., Savoia, Naples, 25 bls. rags.
Castle & Overton, Inc., Giulia, Venice, 225 bls. rags.
Logan & Long, Hektor, Barcelona, 138 bls. rags.
Warren Manfg. Co., Hektor, Barcelona, 57 bls. jute waste.
E. Butterworth & Co., Inc., Hektor, Barcelona, 35 bls. rags.
Interstate Trust Co., Hektor, Barcelona, 143 bls. rags.
Bank of New York, Hektor, Barcelona, 323 bls. rags.
Darmstadt, Scott & Courtney, Vincent, Havre, 46 bls. rags.
Star Woolen Co., Vincent, Dunkirk, 23 bls. rags.
R. Bishop Manfg. Co., Vincent, Dunkirk, 179 bls. rags.
I. Horowitz, Vincent, Dunkirk, 10 bls. rags.
Katzenstein & Keene, Inc., Indep. Hall, St. Nazaire, 58 bls. bagging.
Katzenstein & Keene, Inc., Indep. Hall, St. Nazaire, 50 bls. rags.
The Barret Co., Indep. Hall, St. Nazaire, 383 bls. rags.
Riper & Co., Western Ally, Rotterdam, 5 bls. rags.

OLD ROPE

Furness Withy & Co., London Exchange, London, 111 coils.
Brown Bros. & Co., Lapland, Antwerp, 61 coils.
J. H. Mueller, Cristobal, Cristobal, 46 coils.
Brown Bros. & Co., A. Ballin, Hamburg, 41 coils.
Brown Bros. & Co., Chicago City, Bristol, 42 coils.
Castle & Overton, Inc., Sicilian Prince, Leith, 93 coils.
Chemical National Bank, Lutzow, Bremen, 33 coils.
Brown Bros. & Co., Vincent, Havre, 73 rolls.
Brown Bros. & Co., Vincent, Dunkirk, 91 coils.
International By Products Corp., Indep. Hall, St. Nazaire, 144 rolls.

CHINA CLAY

C. T. Wilson & Co., Inc., Chicago City, Bristol, 25 casks.

CASEIN

Atterbury Bros., Inc., Rochambeau, Havre, 267 bags.
Kalbfleisch Corp., Western World, Buenos Aires, 811 bags.
Champion Coated Paper Co., Western World, Buenos Aires, 1,446 bags.

(Continued on page 58)

BOLTON QUALITY

JOHN W. BOLTON & SONS, INC.

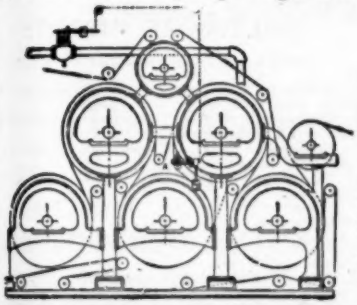
EAGLE KNIFE & BAR WORKS

Lawrence, Mass.

The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

The Pickles Drying Regulator



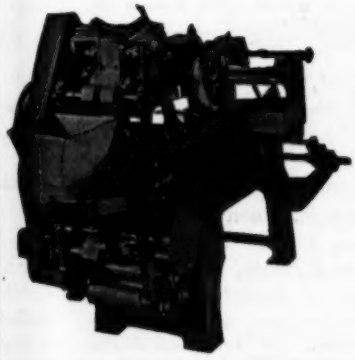
WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**



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Paper Bag Machinery

Get My Quotations Before Placing Your Orders

Special Machinery Designed and Built

A. L. PARRISH

1702 Robinson St., South Bend, Ind.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company

PROVIDENCE, R. I.

Imports of Paper and Paper Stock

(*Continued from page 56*)

National City Bank, Western World, Buenos Aires, 334 bags.
Casein Manfg. Co., Capillo, Buenos Aires, 334 bags, 20,040 ks.

WOOD PULP

G. S. Kerr Co., Nidareid, Buctouche, 400 cords wood pulp.
G. S. Kerr Co., Nidareid, Richibucto, 890 cords wood pulp.
G. S. Kerr Co., Minna, St. Albans, 926 cords wood pulp.
Atterbury Bros., Inc., Oscar II, Oslo, 500 bls. wood pulp.
Price & Pierce, Ltd., Stockholm, Gothenburg, 125 bls. wood pulp.
Polaris Shipping Co., Dampfire, Sonora, 1,296 cords wood pulp.

WOOD PULP BOARDS

Chatham & Phoenix Natl. Bank & Trust Co., Stockholm, Gothenburg, 33 bls.
Lagerloef Trading Co., Thuringia, Hamburg, 154 bls., 64 tons.
Lagerloef Trading Co., G. Washington, Bremen, 203 bls., 29 tons.
Lagerloef Trading Co., A. Ballin, Hamburg, 55 bls., 7 tons.

WOOD FLOUR

Composition Materials Co., Caledonia, Glasgow, 40 bags.
State Chemical Co., Western Ally, Rotterdam, 555 bags, 34,920 ks.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 13, 1928

Chase National Bank, London Exchange, London, 91 bls. rags.
J. Lang Paper Co., London Exchange, London, 288 bls. rags.
Brown Bros. & Co., London Exchange, London, 123 bls. old rope.
G. M. Graves Co., London Exchange, London, 65 bls. old rope.
The Borregaard Co., Inc., Sagoporack, Hurum, 862 bls. sulphate, 143 tons.
Castle & Overton, Inc., Sacandaga, Antwerp, 1,545 bls. rags.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 177 bls. rags.
S. E. Ingber, Sacandaga, Antwerp, 213 bls. rags.
A. Hurst & Co., Sacandaga, Antwerp, 93 bls. rags.
J. A. Steer & Co., Sacandaga, Antwerp, 320 bls. rags.
F. Weber & Co., Sacandaga, Antwerp, 6 cs. paper.
A. H. Searle, Inc., Sacandaga, Antwerp, 225 bls. rags.
E. A. Stone, Inc., Sacandaga, Antwerp, 74 bls. rags.
E. J. Keller Co., Inc., Maliko, ——, 634 bls. rags.
E. J. Keller Co., Inc., Augsborg, ——, 548 bls. rags.
E. J. Keller Co., Inc., Innoko, ——, 265 bls. rags.
E. J. Keller Co., Inc., Innoko, ——, 97 bls. bagging.
Castle & Overton, Inc., Zenada, Germany, 380 bls. rags.
Castle & Overton, Inc., Ontario, France, 71 bls. rags.
Castle & Overton, Inc., Collamer, France, 35 bls. rags.
Castle & Overton, Inc., Burgerdyk, Holland, 58 bls. rags.
Castle & Overton, Inc., London Mariner, England, 31 bls. waste paper.
Castle & Overton, Inc., Medion, England, 119 bls. rags.
Castle & Overton, Inc., Waukegan, France, 94 bls. rags.
Castle & Overton, Inc., London Corp., England, 59 coils old rope.
Robert Blank, Indep. Hall, Bordeaux, 534 bls. rags.
Castle & Overton, Inc., Indep. Hall, Bordeaux, 242 bls. rags.
E. J. Keller Co., Inc., Indep. Hall, ——, 62 bls. rags.
E. J. Keller Co., Inc., Indep. Hall, ——, 105 bls. rags.
E. A. Stone, Inc., Indep. Hall, St. Nazaire, 794 bls. rags.
V. Galaup, Indep. Hall, St. Nazaire, 298 bls. rags.
Castle & Overton, Inc., Indep. Hall, St. Nazaire, 656 bls. rags.
A. Hurst & Co., Inc., Indep. Hall, St. Nazaire, 36 bls. rags.
D. I. Murphy, Indep. Hall, St. Nazaire, 396 bls. rags.

BOSTON IMPORTS

WEEK ENDING OCTOBER 13, 1928

Oxford University Press, Scythia, Liverpool, 5 cs. printing paper.
J. Andersen & Co., Sagoporack, Sarpsborg, 5,652 bls. sulphite, 942 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 150 bls. sulphite, 25 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 1,236 bls. sulphate, 206 tons.
J. Andersen & Co., Sagoporack, Gothenburg, 5,000 bls. sulphite, 1,016 tons.
The Borregaard Co., Inc., Sagoporack, Gothenburg, 1,000 bls. wood pulp, 203 tons.
Parsons & Whittemore, Inc., Sagoporack, Gothenburg, 300 bls. sulphite, 50 tons.
Katzenstein & Keene, Inc., Sacandaga, Antwerp, 15 bls. rags.
Meredith Linen Mills, Sacandaga, Antwerp, 7 bls. flax waste.
American Felt Co., Sacandaga, Antwerp, 39 bls. flax waste.
Bank of Commerce, Sacandaga, Antwerp, 22 bls. rags.
New England Waste Co., Sacandaga, Antwerp, 41 bls. thread waste.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 131 bls. bagging.
S. Godfrey, Sacandaga, Antwerp, 8 bls. rags.
R. Bishop Manfg. Co., Sacandaga, Antwerp, 10 bls. rags.
G. W. Millar & Co., Sacandaga, Antwerp, 19 bls. rags.
International By-Products Corp., Sacandaga, Antwerp, 168 bls. rags.
Bird & Son, Sacandaga, Antwerp, 181 bls. rags.
National Shawmut Bank, Sacandaga, Antwerp, 33 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 13, 1928

Castle & Overton, Inc., Cranford, Belgium, 1 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 13, 1928

Baltimore Post, Cornerbrook, Cornerbrook, 3,401 rolls news print.
Washington News, Cornerbrook, Cornerbrook, 1,868 rolls news print.
Washington Star, Cornerbrook, Cornerbrook, 289 rolls news print.
Congoleum Nairn Co., Vincent, Dunkirk, 211 bls. rags.
Congoleum Nairn Co., Vincent, Dunkirk, 10 bls. bagging.
S. Shapiro & Co., Vincent, Dunkirk, 99 bls. rags.
Kalbfleisch Corp., Vincent, Havre, 150 bags casein, 14,947 ks.
B. & O. Railroad, Vincent, Havre, 2 cs. writing paper.
Hutzler Bros., Vincent, Havre, 1 cs. writing paper.
Congoleum Nairn Co., Indep. Hall, Bordeaux, 226 bls. rags.
S. Shapiro & Co., Western Ally, Rotterdam, 0 bls. rags.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 13, 1928

The Borregaard Co., Inc., Sagoporack, Bamble, 513 bls. sulphate, 854 tons.
Old Dominion Paper Co., Sagoporack, Gothenburg, 345 rolls, 7 bls., 6 pkgs. paper.

Boston Paper Trade Happenings

BOSTON, Mass., October 15, 1928.—The Andrews Paper Company is receiving plenty of orders for kraft, particularly Hickory Kraft. This company is agent in New England for the Graham Paper Company, of St. Louis, Mo., which handles Hickory Kraft for the manufacturers, the St. Helen's Pulp and Paper Company, of St. Helen's, Oregon. The Andrews Paper Company receives a car-load a week on boats from St. Helen's.

A meeting of the Fine Paper Division of the New England Paper Merchants' Association is to be held at the Boston Chamber of Commerce Tuesday.

H. H. Rutter, of Rutter & McNaught, Inc., passed the holiday week-end at Chatham, Mass.

Weisberger Bros. To Expand

INDIANAPOLIS, Ind., October 9, 1928.—Weisberger Brothers, wholesale paper merchants at 519-521 Niles avenue, South Bend, Ind., has acquired a lot with a 120-foot frontage and 146 feet deep on South Main street, near Calvert street in that city for additional warehouse and shipping facilities. The new site is served by a private railroad spur. Rapid growth of the business, of which Phillip and Harry Weisberger are proprietors, has made the step necessary. A modern warehouse, office and salesroom will be erected on the new property shortly, according to officials.

John E. Horne Dead

BOSTON, Mass., October 15, 1928.—John E. Horne, treasurer of the J. H. Horne & Sons Company, manufacturers of paper mill machinery, and president of the Holyoke Bar Company, of Holyoke, Mass., died at his residence, 60 Abbott street, Lawrence, Mass., after a short illness. Mr. Horne was a prominent mason, being a member of Grecian Lodge, Mt. Sinai Temple, Lawrence Council Royal and Select Masters, Bethany Commandery, K. T., Lawrence Lodge of Perfection, and the Princes of Jerusalem and Rose Croix of Lowell. He was also a member of Aleppo Temple, the United States Brothers Lodge, I. O. O. F., Lawrence Encampment, I. O. O. F., the Home Club, Merrimack Valley Country Club, a director of the Broadway Savings Bank, and the Merchants Trust Company.

Western Paper Converting Co. To Expand

PORTLAND, Ore., October 12, 1928.—The Western Paper Converting Company, Salem, Ore., is preparing to double the capacity of its present plant. The plans call for a building the size of the present one, 100 x 200 feet, to be constructed immediately west of the quarters now in use. The need for expansion has arisen through large increase in business, this being the third year of operation since the opening of the business. The sales have trebled over the first year.

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.

Collinwood Sta. CLEVELAND, OHIO

INTERNATIONAL ACCEPTANCE BANK
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International Banking Transactions

Commercial Letters of Credit
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PAUL M. WARBURG, *Chairman* F. ABBOT GOODHUE, *President*

52 Cedar Street, New York

Prompt deliveries made from stocks in
NEW YORK
BOSTON
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PAR In Dyestuffs

As every golfer knows par is a standard of excellence. It is a good term to apply to Heller & Merz dyestuffs. They are par dyestuffs because they represent the excellence which exacting users demand.

Heller & Merz service is just as good. Ask us about both.

The HELLER & MERZ COMPANY
505 Hudson St., New York

Boston 287 Atlantic Ave. | Chicago 146 W. Kinzie St. | Philadelphia 114 Market St.

Springfield, Mass. 24 Lester Street

Factory—NEWARK, N. J.

Where "PALCO" Packing Lifts the Friction Load Off the Shaft.

Photograph of a Centrifugal Pump Shaft badly worn by working against flax packing which did not carry sufficient lubricant to prevent friction.

STYLE C PACKING

For pumps handling caustic soda and similar chemicals. Its lubricant can be relied upon to resist the cutting action of these chemicals, and to keep the pump shaft so perfectly lubricated as to avoid friction. To prove our claims let us send you a free working sample to test under your own conditions.

GREENE, TWEED & CO.
Sole Manufacturers
109 Duane St., New York

Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	85
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
International Paper 6s, 1955	102	103
International Paper 5s, 1947	98	100
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s,, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	101	103½
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	150	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Rubberoid	95	101
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	105	None Off.

AUTOBIOGRAPHY OF A PAPER MAKER

(*Continued from page 26*)

From there I went to a three machine mill—one Fourdrinier, one Harper and one cylinder. They had a ground wood pulp mill and two sulphite digesters and manufactured news print. Their average speed was 135 to 150 feet. I stayed there about two and one-half years in the capacity of night superintendent, but as all night work did not appeal to me, I left.

I was then with the George Whiting Wisconsin River Paper Company and the Plover Paper Company, a print mill and a fine writing paper mill, respectively. Each mill had two machines and an average speed of 150 to 170 feet. One day I saw a special car run up on the spur at the mill and a group of men, whom I later learned were superintendents and managers, stepped from it. They had come to see one of the machines which had been speeded up to 400 feet a minute, run. They pulled out their watches to time the driers and one could see expressions of incredulity on their faces. They walked around the driers again and again to satisfy themselves. This mill was the second in the United States to run at that rate of speed and, of course, quite a novelty. At that time they used 75 per cent ground spruce and 25 per cent sulphite. After serving this mill eighteen years I quit.

With the Marathon Paper Mills Co.

I was with the Marathon Paper Mills Company at Rothschild, Wis., next. They had one Harper and two cylinder machines, two large digesters and a ground wood pulp mill. No. 2 writing paper, fancy colored fine papers, toilet tissues and card board were manufactured by them. I was at Rothschild about nine months.

From there I went to Green Bay and worked for the Northern Paper Mills. John Fogarty was general manager. They had three machines—one Harper and two cylinder—and made a little news print but mostly toilet tissues. I remained with them about three and one-half months.

My next and last place of employment was at Mosinee, Wis, with the Wausau Sulphate Fibre Company, now known as the Mosinee Paper Mills Company. This mill has three Fourdrinier machines and a sulphate pulp mill. I have been with this company seventeen years and was one of the first beater engineers hired by the late Olai Bache-Wiig. Kraft was a new thing for me, but it was not hard to master.

I am now 82 years old and have just retired after 67 years of service in the paper industry. I have no regrets as I consider the paper industry as good as any other. After vacationing for the next ten years I may decide to come back into the fold; but am most happy to retire now in the good will of a company such as the Mosinee Paper Mills Company.

Banquet for Old Employees

[FROM OUR REGULAR CORRESPONDENT]

WORONOCO, Mass., October 16, 1928.—The annual banquet tendered by Horace A. Moses, head of the Strathmore Paper Company, to the office employees and heads of departments will be held at Clinton Hotel in Springfield, November 11. At this occasion recognition will be given those employees who have worked for the company 25 years or more. The committee in charge consists of Ira Wyman, J. C. Cleary, H. R. Johnson, L. W. Bezina and A. W. Butler.

BROWN COMPANY'S ALPHA GRADES

of Purified Cellulose Fibre representing some of the valuable results of our many years of research in cellulose chemistry.

SUPER ALPHA

for strength in Tear, Fold and Mullen. Super Alpha equals the higher grades of rags in the manufacture of fine papers.

EASY-BEATING ALPHA

This is a grade developed for mills of limited beating capacity. While not giving results equal to Super Alpha, it produces wonderful paper on short beating.

REGULAR ALPHA

This is a grade midway between Super and Easy-Beating.

Use ALPHA for Quality

BROWN Company FOUNDED 1852 Portland, Maine

The Babcock & Wilcox Co.

85 LIBERTY STREET, NEW YORK
ESTABLISHED 1868

THE BABCOCK & WILCOX COMPANY STEAM

Water Tube Boilers Steam Superheaters
Economizers Air Preheaters
Chain Grate Stokers Oil Burners
Refractories
Seamless Tube and Piping

BRANCH OFFICES

ATLANTA	Candler Building
BOSTON	80 Federal Street
CHICAGO	Marquette Building
CINCINNATI	Traction Building
CLEVELAND	Guardian Building
DALLAS, TEXAS	Magnolia Building
DENVER	444 Seventeenth Street
DETROIT	Ford Building
HOUSTON, TEXAS	Electric Building
LOS ANGELES	Central Building
NEW ORLEANS	344 Camp Street
PHILADELPHIA	Packard Building
PHOENIX, ARIZ.	Heard Building
PITTSBURGH	Farmers Deposit Bank Building
PORTLAND, ORE.	Failing Building
SALT LAKE CITY	Kearns Building
SAN FRANCISCO	Sheldon Building
SEATTLE	L. C. Smith Building
HONOLULU, T. H.	Castle & Cooke Building
HAVANA, CUBA	Calle de Aguiar 104
SAN JUAN, P. R.	Recinto Sur 51

One piece—No folds

PAPRUS DISHES are *moulded* in one piece from fresh pulp—without folds, without staples. They are rigid as wood. Yet they cost less than other dishes!

These are talking points that help your salesmen get orders. You can increase your business with Paprus Dishes. Write for prices.

Paprus Dishes used as covered container

PAPRUS DISHES

KEYES FIBRE COMPANY, INC.
General Sales Offices: GRAYBAR BLDG., NEW YORK
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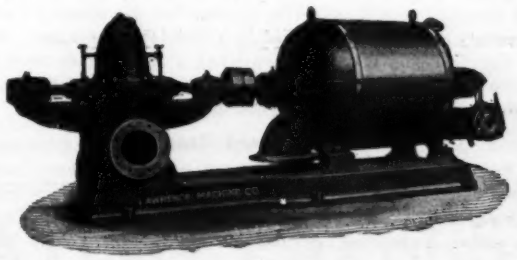
Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.

We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty-four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

Lawrence Machine Company

361 Market St. Lawrence, Mass.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 17, 1928.

Business in the local paper market is satisfactory. Demand for the various grades is persistent. Supplies are moving into consumption in excellent volume. Prices are generally well maintained and instances of shading are scarce. Sales forces of the leading paper organizations continue active and the outlook for the future is encouraging.

The news print market is showing signs of improvement. Statistics gathered by the News Print Service Bureau show that during September the Canadian mills operated at 80 per cent of rated capacity and the United States mills at 77.2 per cent. Stocks of news print paper at Canadian mills totalled 43,800 tons at the end of September and at United States mills 35,687 tons, making a combined total of 79,487 tons, which was equivalent to 5.2 days' average production.

Production of paper board is being maintained in good volume. Box board is in particularly strong request. Prices remain steady, in most instances. The fine paper market is in a sound position, with prices holding to schedule. No radical changes have been reported in the coarse paper market although the demand for wrapping paper is increasing.

Mechanical Pulp

Most of the business transacted in the ground wood market during the past week was along routine lines. Contract withdrawals of both domestic and imported mechanical pulp are going forward at a normal pace. Stocks in hand are about sufficient to take care of current requirements. Prices remain unchanged and shading is infrequent.

Chemical Pulp

Demand for the various grades of chemical pulp, both imported and domestic, is well up to the average for the season. Contract shipments are being maintained in a satisfactory manner. While the chemical pulp market is exhibiting a strong undertone, some grades are in an exceptionally sound position, especially bleached sulphite. Prices are generally holding to former levels.

Old Rope and Bagging

The old rope market is moderately active. Domestic and imported manila rope are in fair request. Quotations are practically unchanged. The bagging market remains rather quiet. Demand for scrape bagging is dull and roofing bagging is only moving slowly at present. Prices remain fairly steady considering prevailing conditions.

Rags

Steadiness prevails in the local rag market. Cotton cuttings are n fair request. The demand for roofing grades is somewhat quieter. Prices are generally holding to schedule although there have been concessions on extra large orders. The imported rag market is showing some signs of improvement and mill interest in the various grades is slowly increasing. Prices remain fairly steady.

Waste Paper

The paper stock market is becoming more lively. The various grades used by the board mills are in excellent request. Strictly folded news is now selling at from .75 to .85. Solid flat book stock is firmer and is now quoted at from 1.45 to 1.55. Shavings are in better demand than for some time. Soft white No. 1 is now offered at from 2.55 to 2.65. Other grades are steady to firm.

Twine

With the approach of the Christmas holiday season, the outlook for the twine market is decidedly promising, especially as wrapping paper is moving in better volume. Prices of the various grades of twine are holding to schedule, in most instances, and there is not much talk of concessions around at the present time.

Waxed Paper Industry Conference Called

A meeting of manufacturers of waxed paper has been called for October 25, and wll be held at the Mayflower Hotel, Washington, D. C. Every manufacturer of waxed paper has been invited and urged to attend this meeting, because of its importance.

The Federal Trade Commission has approved the Trade practice Conference and the rules as submitted by the industry, and has announced that these rules shal lbecome effective on November 15.

In order to comply with the various rules in question it is necessary to develop schedules and plans providing for their legal compliance and at the same time to standardize upon the methods so that no individual company may feel that there is any unfairness through the plan adopted.

In as much as the rules and the plans for their compliance will affect every manufacturer of waxed paper the attendance at this meeting should be quite large and the developments of exceeding interest.

The meeting has been called by Paul S. Hanway, recently elected secretary by the Trade Practice Conference and will be held under the auspices of the American Waxed Paper Association, which has sponsored the Trade Practice Conference, and has received support from more than 50 per cent of the non-member waxed paper manufacturers.

Visit District of Columbia Paper Mfg. Co.

The salesmen of the Marquardt, Blake & Decker Company, New York, visited the plant of the District of Columbia Paper Manufacturing Company, Washington, D. C., October 11 and 12. There were fourteen in the party including Ralph Collins and Randolph Decker.

They arrived in Washington at 7:45 Thursday night, and most of them left for New York on Friday evening. They were shown through the mill, had luncheon, and short talks were given by W. W. Langtry, Herman Harrigan and Robert N. Finlay. In the afternoon there was a trip to Arlington Cemetery, Lincoln Memorial, and the beauty spots of Washington.

William F. Etherington Dead

William Fisher Etherington, president of W. F. Etherington & Co., Inc., paper merchants, of 50 East 42nd street, died Saturday at his residence, 430 Park avenue, New York. He was also vice-president of the M. T. Richardson Company. His age was 74.

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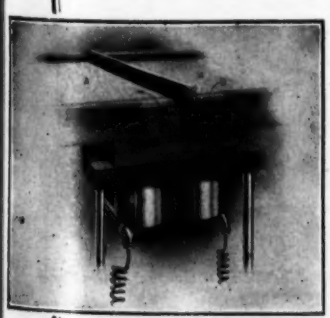

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Electrical Specialists Holyoke, Mass. *Established 1885*

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 17, 1928.

BLANC FIXE.—Steadiness prevails in the blanc fixe market. Both the pulp and the powder are in seasonal demand. Prices remain unchanged. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3½ cents to 3¾ cents a pound, in barrels, at works.

BLEACHING POWDER.—Contract withdrawals of bleaching powder continue to go forward in fair volume. The demand for this product is rather light at present but prices are generally holding to former levels. Bleaching powder is offered at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—Trading in the casein market was moderately active during the past week. Quotations declined slightly. Domestic casein is now selling at from 15½ cents to 17 cents per pound while imported casein is quoted at from 16½ cents to 17 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market is in a sound position. Consumption is being maintained in good volume. Prices are steady. Solid caustic soda is quoted at from $2.90 to $2.95 per 100 pounds. The flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Conditions in the china clay market are satisfactory. Demand for both imported and domestic grades is persistent. Imported china clay is quoted at from $15 to $25 per ton, ship side. Domestic paper making clay is selling at from $8 to $9 per ton, at mine, and pulverized at from $10 to $12 per ton.

CHLORINE.—Supplies of chlorine are going forward regularly. Prices are holding to schedule without difficulty. Chlorine is selling at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents per pound.

ROSIN.—The rosin market was moderately active. At the naval stores, the grades of gum rosin used in the paper mills are now quoted at from $9.25 to $9.35 per 280 pounds, ex dock, in barrels. Wood rosin is offered at from $7.15 to $7.95 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Business in the salt cake market was well up to average during the week. Contract shipments are moving at a steady pace. Prices remain unchanged. Salt cake is quoted at from $15 to $17 a ton, in bulk, at works. Chrome salt cake is selling at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Inquiries for future business are fairly numerous and prices are steady to firm. Contract quotations on soda ash, in car lots, per 100 pounds, according to grade, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—Most of the business transacted in the starch market during the week was along routine lines. Offerings are sufficient to take care of current needs. Prices remain unaltered. Special paper making starch is still selling at $4.07 per 100 pounds, in bags, and at $4.24 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Shipments of sulphate of alumina are going forward to contract consumers in a satisfactory manner. Prices are steady. Commercial grades are still quoted at from $1.40 to $1.45 per 100 pounds and iron free at from $1.90 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Increased activity was reported in the sulphur market. Contract withdrawals were well up to average. Prices remain steady and there is little possibility of concessions for some time. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine, on contract orders. The spot quotation is $20 per ton.

TALC.—The talc market is practically unchanged. The prevailing demand is normal for the season. Prices are holding to schedule in most instances. Domestic talc is quoted at from $16 to $18 a ton, in bulk, at eastern mines. Imported talc is selling at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	9.00	@	45.00
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	8.00	@	11.00
News—			
Rolls, contract	3.25	@	—
Rolls, transient	3.25	@	3.50
Sheets	3.65	@	3.85
Side Runs	3.00	@	3.75
Book, Cased—			
S. & S. C.	6.35	@	7.75
M. F.	6.25	@	7.75
Coated and Enamel	8.00	@	15.00
Lithograph	8.00	@	15.00
Tissues—Per Ream—			
White No. 1	.75	@	1.00
Anti-Tarnish	1.10	@	1.90
Colored	1.00	@	2.00
White No. 2	.75	@	.85
Kraft	.90	@	1.00
Manila	.75	@	.85
Kraft—			
No. 1 Domestic	6.25	@	6.50
No. 2 Domestic	4.25	@	4.50
Southern	4.00	@	4.25
Imported	6.50	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	3.75	@	4.25
Fibre Papers—			
No. 1 Fibre	5.00	@	5.50
No. 2 Fibre	4.75	@	5.25
Common Bogus	2.75	@	3.00
Screenings	3.00	@	3.25
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs.	13.00	@	16.00
Bleached, basis 20 lbs.	15.00	@	16.00

(Delivered New York)

Boards—per ton—			
News	42.50	@	45.00
Straw	52.50	@	55.00
Chip	40.00	@	42.50
Binders' Boards	65.00	@	67.50
Sgl. Mla. Ll. Chip.	50.00	@	52.50
Wood Pulp	80.00	@	85.00
Container	57.50	@	60.00
85 Test Jute Liner.	55.00	@	57.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—			
Moist	28.00	@	31.25
Dry	32.00	@	34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@	29.00
Screenings	15.00	@	20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.65	@	4.40
Easy Bleaching	2.80	@	2.90
No. 1 strong unbleached	2.50	@	2.70
Mitscherlich unbleached	2.65	@	3.25
No. 2 strong unbleached	2.40	@	2.60
No. 1 Kraft	2.50	@	2.75
No. 2 Kraft	2.40	@	2.50
Sulphate—			
Bleached	3.75	@	3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—			
Bleached	3.40	@	4.75
Easy Bleaching Sulphite	2.60	@	2.75
News Sulphite	2.40	@	2.65
Mitscherlich	3.00	@	3.70
Kraft (Domestic)	2.70	@	3.30
Soda Bleached	3.15	@	3.50
Sulphate Screenings—			
Coarse	.75	@	.85
Refined	1.50	@	1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	11.00	@	11.50
New White, No. 2.	8.00	@	8.50
Silesias No. 1	7.25	@	7.75
New Unbleached	10.50	@	11.00
Washables	4.25	@	4.75
Fancy	5.50	@	6.00
Blue Overall	6.75	@	7.25
New Blue Prints	5.25	@	5.50
New Soft Blacks	5.25	@	5.75
Mixed Khaki Cuttings	4.75	@	5.25
Pink Corset Cuttings	8.00	@	8.50
O. D. Khaki Cuttings	5.25	@	5.75
Men's Corduroy	3.75	@	4.25
New Mixed Blacks	3.50	@	3.75

Old Rags

White, No. 1—			
Repacked	5.50	@	6.00
Miscellaneous	4.50	@	5.00
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	@	2.75
St. Soiled, White	2.00	@	2.15
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.70	@	1.80
No. 1	1.70	@	1.80
No. 2	1.55	@	1.65
No. 3	1.30	@	1.40
No. 4	1.25	@	1.35
No. 5A	.95	@	1.05

Foreign Rags

New Dark Cuttings.	2.50	@	3.00
New Mixed Cuttings.	2.75	@	3.25
New Light Silesias.	7.00	@	7.50
Light Flannelettes	7.50	@	8.00
Unbleached Cottons.	10.00	@	11.00
New White Cuttings.	10.50	@	11.50
New Light Oxfords.	7.00	@	7.50
New Light Prints	5.50	@	6.50
No. 1 White Linens.	7.25	@	8.00
No. 2 White Linens.	5.50	@	6.25
No. 3 White Linens.	4.50	@	5.00
No. 4 White Linens.	3.00	@	3.50
Old Extra Light Prints	2.75	@	3.25
Ord. Light Prints	2.25	@	2.50
Med. Light Prints	1.90	@	2.10
Dutch Blue Cottons	2.25	@	2.50
German Blue Linens.	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	1.75	@	1.90
Lindsay Garments	1.85	@	1.90
Dark Cottons	1.65	@	1.75
Old Shopperies	1.55	@	1.65
New Shopperies	1.50	@	1.60
French Blues	2.10	@	2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.60	@	1.70
Domestic	1.70	@	1.75
Wool Tares, light	1.60	@	1.65
Wool Tares, heavy	1.60	@	1.65
Bright Bagging	1.60	@	1.65
Small Mixed Rope	1.25	@	1.40
Manila Rope—			
Foreign	3.35	@	3.65
Domestic	3.25	@	4.00
New Burlap Cut	2.75	@	3.00
Hessian Jute Threads—			
Foreign	3.50	@	4.00
Domestic	3.25	@	3.50

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	3.25	@	3.50
Hard, white, No. 2	2.40	@	2.55
Soft, White, No. 1	2.55	@	2.65
White envelope cuttings	3.25	@	3.50
Flat Stock—			
Stitchless	1.60	@	1.70
Overissue Mag.	1.60	@	1.70
Solid Flat Book	1.45	@	1.55
Crumpled No. 1	1.05	@	1.15
Solid Book Ledger	2.00	@	2.10
Ledger Stock	1.60	@	1.75
Manilas—			
New B. B. Chips	.65	@	.75
New Env. Cut	2.40	@	2.60
New Cuttings	1.60	@	1.85
Extra No. 1 old	1.25	@	1.35
Print	.80	@	.85
Container	.72½	@	.77½
Bogus Wrapper	.75	@	.85
Old Kraft Machine Compressed bales	1.85	@	1.95 (Made)
News—			
No. 1 White News	1.75	@	1.80
Strictly Overissue	.85	@	.95
Strictly Folded	.75	@	.85
No. 1 Mixed Paper	.60	@	.65
Common Paper	.35	@	.40

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400 tons daily

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H. T. Brand Coating Clay, Highest Grade Filler Clay, being used in some of the largest paper mills in the country. Send for samples and article on "*An American Coating Clay.*" Forty-three years experience in American washed clays are back of this product.

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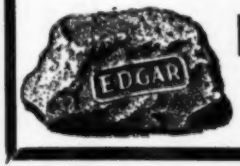

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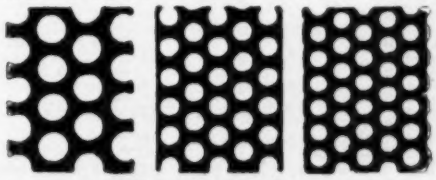

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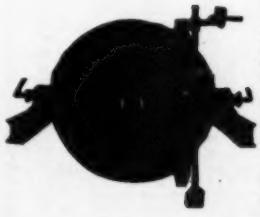

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Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, o	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¼
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¾	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¾
Wood Tag Boards	.04¼	@	.06½
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined— (Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	2.90	@	3.00
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Krafts	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks— (F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Labe	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manil Sul., No. 1	.04½	@	.06
Manil No. 2	.04	@	.04½
No. 2 Kraft	.05½	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.02¾	@	—
Straw Board	52.50	@	75.00
News Board	45.00	@	—
Chip Board	42.50	@	—
Wood Pulp Board	4.50	@	5.00

(Carload Lots)

Binder Boards—			
No. 1, per ton	80.00		
No. 2, per ton	75.00		
Carload lots	60.00	@	70.00
Tarred Felts—			
Regular	53.00	@	55.00
Slaters (per roll)	84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Sil. ia. soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Washable, No. 2	.03	@	.03½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08¾	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.65	@	1.80
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.60	@	1.65
Writing Paper	1.50	@	1.60
No. 1 Books, heavy	1.50	@	1.60
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common Paper	.55	@	.60
No. 1 Mixed Paper	.55	@	.60
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.90	@	.95
Old Newspaper	.60	@	.65

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roonng Stock—			
Foreign No. 1	1.70	@	1.85
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roonng Stock—			
Foreign No. 1	1.70	@	1.85
Repacked	.02¾	@	.02¾
No. 2	1.40	@	1.50
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.25	@	—
No. 5A	.85	@	.90
B	.80	@	.85
C	.70	@	.80

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writing	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04	@	.04¾
Common Bogus	.02	@	.02¾
Delivered New England points			
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board			45.00
Chip Board			42.50
Single Manila Pulp Lined Board	52.50	@	57.50
Single White, Patent Coated Newsboard Bender	70.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00

(F. o. b. Mill)

Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.45	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.65	@	1.70
Old Kraft	2.00	@	2.10
Print Manila	.80	@	.90
No. 1 Mixed Paper	.60	@	.65
Overissue News	.70	@	.75
Old Newspapers	.75	@	.80
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.60
Manila Rope—			
Foreign	3.25	@	3.50
Domestic	3.25	@	3.50
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.45	@	1.50
Scrap Sisal	1.25	@	1.50
Scrap Sisal for shredding	1.60	@	1.70
Wool Tares, heavy	—	@	1.50
New Burlap Cutting	1.90	@	2.00

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.06	@	.06½
New Unbleached	.09½	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04¼
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
Corduroy	.03	@	.03¼
New Canvas	.08	@	.08¼

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	05
Miscellaneous	.03½	@	04
Twos and Blues	—	@	2.50
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.50	@	—
New Checks & Blues	4.50	@	4.65
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	15	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fibre	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	05½	@	—

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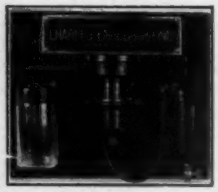

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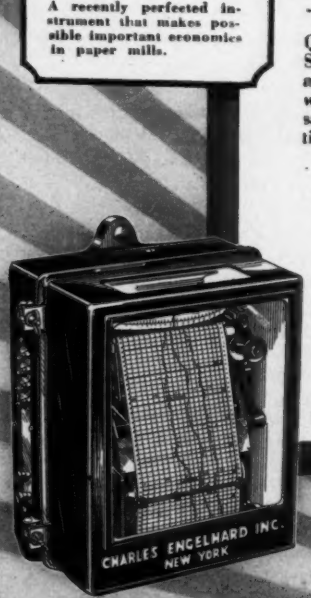

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